2011

ISAT
Sample Book

Illinois
Standards
Achievement
Test

GRADE

5

Sample Items for Reading and Mathematics

ILLINOIS STATE BOARD OF EDUCATION

Table of Contents

Introduction

This sample book contains sample ISAT items classified with an assessment objective from the *Illinois Assessment Frameworks*. These 2011 samples are meant to give educators and students a general sense of how items are formatted for ISAT. All 2011 ISAT test books will be printed in color. This sample book does not cover the entire content of what may be assessed. Please refer to the *Illinois Assessment Frameworks* for complete descriptions of the content to be assessed at each grade level and subject area. The *Illinois Assessment Frameworks* are available online at www.isbe.net/assessment/IAFindex.htm. The Student Assessment website contains additional information about state testing (www.isbe.net/assessment).

Illinois Standards Achievement Test
Reading Samples

Structure of the Grade 5 Reading ISAT

ISAT Reading testing in spring 2011 will consist of 30 norm-referenced items, as well as criterion-referenced items. The 30 norm-referenced items are an abbreviated form of the *Stanford 10 Reading* assessment, developed by Pearson, Inc. The criterion-referenced items are all written by Illinois educators and pilot tested with Illinois students.

Item Formats

All items are aligned to the *Illinois Reading Assessment Framework*, which defines the elements of the Illinois Learning Standards that are suitable for state testing.

Multiple-choice items require students to read and reflect, and then to select the alternative that best expresses what they believe the answer to be. A carefully constructed multiple-choice item can assess any of the levels of complexity, from simple procedures to sophisticated concepts.

Extended-response items require students to demonstrate an understanding of a passage by explaining key ideas using textual evidence and by using this information to draw conclusions or make connections to other situations. The extended-response items are scored with a holistic rubric and count as 10% of the scale score of the test.

Reading Sessions

All standard time administration test sessions are a minimum of 45 minutes in length. Any student who is still actively engaged in testing when the 45 minutes have elapsed will be allowed up to an additional 10 minutes to complete that test session. More details about how to administer this extra time will appear in the *ISAT Test Administration Manual*. This policy does not affect students who already receive extended time as determined by their IEP.

Reading ISAT Grade 5	
Session 1 **45 minutes**	6 shorter passages—30 multiple-choice items total
Session 2 **45 minutes**	Two longer passages consisting of: 1 expository passage with 10 multiple-choice items 1 literary passage with 10 multiple-choice items 1 extended-response item
Session 3 **45 minutes**	Consists of 2 or 3 passages 20 multiple-choice items 1 extended-response item
	(Some items will be pilot items.)

Shorter Passage Followed by Multiple-Choice Sample Items

A Candlelit Holiday

by
Elaine Masters

On one full-moon night every fall, the rivers and lakes of Thailand are dotted with twinkling candles. The Thais are celebrating "Loi Krathong," or "Floating Leaf Cup Day."

No one knows for sure how this lovely custom got started. Some say it was started 700 years ago by a wife of a king who wanted to surprise and please her husband. Others say it started even longer ago as a special religious ceremony. But however it began, it is delightful.

Families always used to make their floats, or little boats, from banana leaves torn into strips and woven into the shape of a bowl. Then they beautifully decorated them with flowers. Now, while many families still make their own floats, others simply buy them. Modern floats may be made of banana leaves or plastic. All of them still hold a lighted candle, a flower, a stick or two of sweet-smelling incense, and a coin.

On the holiday evening, families gather at parks near lakes, rivers, or canals for outdoor dinners. Adults sit on mats and visit with their neighbors while children play tag or hide-and-seek. In some cities, blazing fireworks and dancers in shining silk costumes entertain the crowd.

Many men and women sell things. People sell floats to those who have not made them at home. Other people sell balloons in various shapes and colors or clever toys made of bamboo. Food sellers offer noodle soup, dried fish, candy, little cakes, roasted chicken, and bamboo tubes filled with sticky rice cooked in coconut milk. They pour soft drinks into small plastic bags, whirl a rubber band around the top, and stick in a short straw.

Then, when the full moon rises, families light the candles and set their little boats afloat. The waterway soon twinkles like a fairyland with candles bobbing in their floats and fireworks reflecting in the water.

1

Paragraph 2 of this selection is mainly about —

A how this holiday might have begun
B what the floats are made of
C when the holiday takes place
D what people eat during the holiday

2

To understand more about the meaning of the floating leaf cups, the reader should ask —

A how the floats are kept from being burned by the flame
B why a coin is placed in the float
C what happens to all the floats when the holiday is over
D how much store-bought floats cost

3

After reading the title, what should you expect to learn from this selection?

A How to make your own candles
B Ideas for new recipes
C Why we celebrate the Fourth of July
D Where a candlelit holiday is celebrated

4

Which detail in the selection shows that this is a relaxing holiday?

A Families spend the evening eating, playing, and visiting.
B People spend hours making floats.
C There are many different kinds of food to buy.
D It is held in autumn.

STOP

Answer Key with Assessment Objectives Identified

	Item Number	Correct Answer	Assessment Objective
Shorter Passage	1	A	**1.5.12** Identify explicit and implicit main ideas.
	2	B	**2.5.05** Compare stories to personal experience, prior knowledge, or other stories.
	3	D	**1.5.08** Identify probable outcomes or actions.
	4	A	**1.5.17** Distinguish the main ideas and supporting details in any text.

To view all the reading assessment objectives, download the *Illinois Reading Assessment Framework* for Grades 3–8 online at www.isbe.net/assessment/IAFindex.htm.

Longer Passage Followed by Multiple-Choice Sample Items

This passage shows how friendship can be so important.

All the Way to the Duck Pond

by Sandra Beswetherick

1   "Here's an easy out," Wade says from behind his catcher's mask.

2   "Don't listen to him," I tell Nicole as she goes up to bat.

3   It's spring, and for the past three weeks that's meant baseball in gym class. Teams. With me and my best friend, Nicole, almost always being chosen last.

4   "Everyone move in!" calls Amanda, signaling to the fielders from the pitcher's mound.

5   "You'll be sorry!" I shout.

6   "Yeah, right," Wade says as he squats down behind home plate.

7   Brandon, the best baseball player in the whole school, *collapses* on third base and yawns. "Hurry up, shrimp. Don't take all day."

8   *Shrimp.* That's what practically everyone at school calls Nicole and me. *The shrimps.* It isn't our fault we're the smallest. And just because we're small doesn't mean we aren't good.

9   "Ignore him, Nicole," I say from our bench behind home plate. "What he says doesn't matter."

10   Nicole glances back at me.

11   At least I *wish* it didn't matter. It'll get you down if you let it.

12   "You can hit that ball!" I say. "I've seen you!"

13   "Yeah? Where?" asks Laura, sitting beside me on the bench.

14   "In the city park next to her house," I say right back. "Last Saturday."

15   Laura doesn't believe me. No one does. No one believes that Nicole can clobber that ball. And it's making Nicole not believe it, too. Her body's all stiff. She's standing all wrong. She's choking up too far on the bat.

GO ON▶

16   Amanda pitches. The ball goes way up, then drops down. Why can't she pitch to Nicole the same way she pitches to everyone else?

17   Nicole swings hard, misses, and spins like a top.

18   Ron, the first baseman, laughs. Brandon, lying on his back, folds his hands under his head, using third base as a pillow. Even Ms. Perce makes a face that says *ouch.*

19   "Nicole, you can do it!" I say. "Just pretend you're in the park, like last Saturday!"

20   Last Saturday—when we didn't play on teams. When we just took turns with the neighborhood kids. And when no one called us shrimps or dared to move in from the outfield when we were at bat.

21   Nicole looks at me again. This time she smiles, I think, even though the smile is crooked. But she fixes her grip on the bat.

22   Amanda pitches really slowly again. It's as if the ball will never reach home plate. But Nicole leans forward and swings.

23   *Thunk!*

24   She hits it! For the first time ever at school, she actually hits it! The ball pops up, then bounces to the ground behind her. Foul ball.

25   "See, Nicole?" I shout. "You *can* hit that ball!"

26   "Big deal," Laura says. "It didn't go anywhere."

27   "Hit it again!" I yell, ignoring Laura. "Harder!"

28   Nicole's smile isn't so crooked anymore. She takes a deep breath and lets it out. She spreads her feet wider apart and bends her knees a little. Then she takes a few practice swings.

29   Nicole's getting ready to show everyone. I just know it. She's going to blast that ball like she did last Saturday when she whammed it into the duck pond.

30   "Action, at last!" It's Brandon on third. He's standing up, getting ready. "Let's see you really slam it." This time he isn't teasing.

31   Nicole glances in his direction. Her smile grows wider. She takes one more practice swing.

32   Amanda throws the ball. It's another slow one.

33   "Come on, Nicole!" My hands are clenched together in a knot. "Hit it all the way to the duck pond!" I don't care if nobody but Nicole understands what I mean.

34   Nicole steps forward, bringing the bat back over her shoulder. I squeeze my hands even tighter and almost close my eyes.

35   *Craaack!*

36   The ball sails high over Amanda's head. Amanda stands there with her mouth hanging open, watching it go. And the fielders—for a second, it's as if their feet grew roots into the ground.

GO ON ▶

37   "Run, Nicole!" I holler.

38   She crosses first base, then keeps going to second and third. Dust flies up behind her.

39   "Home, Nicole!" I'm jumping up and down, going wild. I'm the only one cheering because everyone else is too surprised. Even Ms. Perce looks amazed as Nicole goes *tearing* past her.

40   "Yeesss!" I scream.

41   It's a home run! A for-real home run! I knew she could do it. Nicole knew it, too. She just needed someone to help her believe.

42   "Hey, shrim—I mean, Nicole," Brandon calls. "All right!"

43   The way Nicole crosses home plate—it's as if she made home runs every day of the week. Then she picks up the bat and hands it to me. "Your turn," she says, smiling.

44   "OK!" yells Amanda to the fielders. "Everyone spread out!"

45   I step up to home plate, bat in my hands, ready for whatever pitches come my way.

1

Which is a synonym for the word *collapses* in paragraph 7?

A Falls
B Steals
C Squats
D Jumps

2

What happened *before* the baseball game at school started?

A Nicole hit a homerun in the park.
B Nicole hit a homerun in gym class.
C Nicole teased children on the field.
D Nicole was often picked first for teams.

GO ON ▶

3

In paragraph 18, what event causes Ms. Perce to make a face?

A Nicole strikes out.
B Nicole hits a pop up.
C Nicole is hit by the ball.
D Nicole swings and misses.

4

Read this sentence from paragraph 39.

"Even Ms. Perce looks amazed as Nicole goes *tearing* past her."

What does the word *tearing* mean?

A Speeding
B Sobbing
C Skipping
D Shredding

5

What is Nicole's biggest problem in the story?

A She is easily distracted.
B She is small for her age.
C She does not have talented teammates.
D She does not believe in herself.

6

Which is an example of a simile?

A Dust flies up behind her.
B No one believes that Nicole can clobber that ball.
C Nicole swings hard, misses, and spins like a top.
D My hands are clenched together in a knot.

7

What is the *most likely* reason the author wrote this passage?

A To inform people with facts about baseball
B To entertain people with a story about baseball
C To persuade people to play baseball
D To teach people how to play baseball

GO ON▶

8 Which shows an example of onomatopoeia?

A "Action, at last!"
B "Come on, Nicole!"
C *Thunk!* "She hits it!"
D "You *can* hit that ball!"

9 What would be another good title for this passage?

A "Baseball Moves"
B "You Can Do It"
C "Bullies Go Home"
D "Gym Class Clowns"

10 Which term *best* describes this passage?

A Poetic
B Narrative
C Persuasive
D Expository

STOP

Answer Key with Assessment Objectives Identified

	Item Number	Correct Answer	Assessment Objective
Longer Passage with Multiple-Choice Items	1	A	**1.5.03** Use synonyms to define words.
	2	A	**1.5.20** Identify or summarize the order of events in a story or nonfiction account.
	3	D	**1.5.21** Identify the causes of events in a story or nonfiction account.
	4	A	**1.5.05** Determine the meaning of a word in context when the word has multiple meanings.
	5	D	**1.5.17** Distinguish the main ideas and supporting details in any text.
	6	C	**2.5.12** Identify and interpret figurative language (e.g., metaphor, alliteration, personification).
	7	B	**1.5.27** Determine the author's purpose for writing a fiction or nonfiction text (e.g., to entertain, to inform, to persuade).
	8	C	**2.5.13** Identify examples of poetic devices using sound, such as alliteration, onomatopoeia, rhyme scheme, and unrhymed verse.
	9	B	**1.5.18** Identify the main idea of a selection when it is not explicitly stated (e.g., by choosing the best alternative title from among several suggested for a given passage).
	10	B	**2.5.15** Identify whether a given passage is narrative, persuasive, or expository.

To view all the reading assessment objectives, download the *Illinois Reading Assessment Framework* for Grades 3–8 online at www.isbe.net/assessment/IAFindex.htm.

Extended-Response Sample Item

Assessment Objective: 2.5.04 Identify the author's message or theme.

1

What does the author want the reader to learn from Nicole's success? Use information from the passage and your own observations and conclusions to support your answer.

STOP

Extended-Response Scoring Rubric

Reading Extended-Response Scoring Rubric

Readers identify important information found explicitly and implicitly in the text. Readers use this information to interpret the text and/or make connections to other situations or contexts through analysis, evaluation, or comparison/contrast. A student-friendly version of this extended-response rubric is available online at www.isbe.net/assessment/reading.htm.

Score	Criteria
4	• Reader demonstrates an accurate understanding of important information in the text by focusing on the key ideas presented explicitly and implicitly. • Reader uses information from the text to interpret significant concepts or make connections to other situations or contexts logically through analysis, evaluation, inference, or comparison/contrast. • Reader uses relevant and accurate references; most are specific and fully supported. • Reader integrates interpretation of the text with text-based support (balanced).
3	• Reader demonstrates an accurate understanding of information in the text by focusing on some key ideas presented explicitly and implicitly. • Reader uses information from the text to interpret significant concepts or make connections to other situations or contexts logically (with some gaps) through analysis, evaluation, inference, or comparison/contrast. • Reader uses relevant and accurate references; some are specific; some may be general and not fully supported. • Reader partially integrates interpretation of the text with text-based support.
2	• Reader demonstrates an accurate but limited understanding of the text. • Reader uses information from the text to make simplistic interpretations of the text without using significant concepts or by making only limited connections to other situations or contexts. • Reader uses irrelevant or limited references. • Reader generalizes without illustrating key ideas; may have gaps.
1	• Reader demonstrates little or no understanding of the text; may be inaccurate. • Reader makes little or no interpretation of the text. • Reader uses no references, or the references are inaccurate. • Reader's response is insufficient to show that criteria are met.
0	• Reader's response is absent or does not address the task. • Reader's response is insufficient to show that criteria are met.

Grade: 5   **Sample: 1**   **Score: 2**

DIRECTIONS ▶ Make sure you

- – Read the question completely before you start to write your answer,
- – Write your answer to the question in your own words,
- – Write as clearly as you can so that another person can read your answer and understand what you were thinking,
- – Read over your answer to see if you need to rewrite any part of it.

From reading the passage All the way to the. duck Pond you will learn Now to be confident about what you do. You will learn how believe in yourself. You will learn to listen to your friend for advice. It doesn't matter if you are small or tall you can still play baseball You will learn how to not listen to other people that teases you.

* The student demonstrates an accurate but limited understanding of the text. This response consists of passage-related guidance about the importance of believing in oneself. Actual text references are very limited and somewhat vague (*You will learn to listen to your friend for advice. It doesn't matter if you are small or tall*).

Grade: 5   **Sample: 2**   **Score: 2**

DIRECTIONS ▶ Make sure you

- **Read the question completely before you start to write your answer,**
- **Write your answer to the question in your own words,**
- **Write as clearly as you can so that another person can read your answer and understand what you were thinking,**
- **Read over your answer to see if you need to rewrite any part of it.**

The auother wants the reader to learn from Nicoles success by teling them to belive in your self and that she can hit the ball.

When Nicole frist came up to bat she was nervous and scared. She thought she couldnt hit the ball or a home run. But her friend reminded her about the time they played at the park with the other kids.

She smiled, but when she hit it it went down the foul line but she hit it again and it went at of the park.

Thats how the aouthor showed the reader Nicoles success.

*The student demonstrates an accurate but limited understanding of the text. Student uses limited text references (*When Nicole frist came up to bat she was nervous…her friend reminded her about the time they played at the park with the other kids*). The interpretation is simplistic (*…telling them to belive in your self*). The response is mostly a retelling of the passage.

Grade: 5   **Sample: 3**   **Score: 3**

DIRECTIONS ▶ Make sure you

- – Read the question completely before you start to write your answer,
- – Write your answer to the question in your own words,
- – Write as clearly as you can so that another person can read your answer and understand what you were thinking,
- – Read over your answer to see if you need to rewrite any part of it.

The author wants people to know even if you don't think your going to be able to do something, still try really hard. Nicole didn't think she could hit the ball, but she clobbered with confidence and her friend really thinks she could do it. It doesn't matter if your short or got picked last on a baseball team at gym, or both of those reasons because you can still hit the ball. The author also wants the reader to know that you can think you can't do something, but then you remember that you have done that thing before. In the story,

Nicole remembers when she hit the some baseballs really hard in the neighborhood which convinced her that she could hit the ball and she did. This meant that she started off feeling sad and then became happy when she hit the ball I think that girls can be sucessful at baseball just as much as boys

*The student demonstrates an accurate understanding, focusing on some key ideas. The student uses information to interpret some key ideas (*It doesn't matter if your short or got picked last on a baseball team…you can still hit the ball…you can think you can't do something, but then you remember that you have done that thing before*). Some references are specific, and some are general. The interpretation (*Nicole didn't think she could hit the ball, but she clobbered with confidence…Nicole remembers when she hit the some baseballs really hard in the neighborhood…*) and the text references are partially integrated.

Grade: 5	Sample: 4	Score: 3

DIRECTIONS ▶ **Make sure you**

- **Read the question completely before you start to write your answer,**
- **Write your answer to the question in your own words,**
- **Write as clearly as you can so that another person can read your answer and understand what you were thinking,**
- **Read over your answer to see if you need to rewrite any part of it.**

From Nicole's success the author wants the reader to learn many things from this passage. The author wants us to learn to believe in ourselves. If we are not the best person or player just to say oh I can't do it what is the use. If we want to succed we have to believe. In the text, it states that when Nicole's smile grew larger the ball moved forward and she hit it harder. When her friend cheers her on and she believes in herself she has a great game. Nicole now has a smile on her face and is ready to not be teased

anymore. She is ready to be the best
she can be. In my opinion, when you
believe in yoursels you just become a
better, stronger person. When she tried
her best she succeeded which proves
how good of a player she is. Even
when nobody believed Nicole could do
it she proved them wrong and she
belived in herself to keep going and
to be the best she could be.
One time I was playing softball
with my team and hardly hit the
ball. But my coach said you can do it
don't worry it is supposed to be
fun. Another reason the author wrote this
story was to learn. I learned that
trying your best is the best
thing you can do. If you try and
you fail that is ok, but we should
always be the best we can be and

never forget to be you and when you believe you will always succeed.

The student demonstrates an accurate understanding focusing on some key ideas. The student uses information from the text (…when Nicole's smile grew larger the ball moved forward and she hit it harder…nobody believed Nicole could do it she proved them wrong…*). Some references are specific, and some are general. The interpretation (*If we want to succeed we have to believe…In my opinion, when you believe in yourself you just become a better, stronger person…never forget to be you and when you believe you will always succeed*) and the text references are partially integrated. A brief and relatively weak personal connection to the text (*One time I was playing softball…*) is offered as comparison.

Grade: 5   **Sample: 5**   **Score: 4**

DIRECTIONS ▶ Make sure you

- Read the question completely before you start to write your answer,
- Write your answer to the question in your own words,
- Write as clearly as you can so that another person can read your answer and understand what you were thinking,
- Read over your answer to see if you need to rewrite any part of it.

Home run! In the story "All the Way to the Duck Pond" Nicole succeed by hitting a home run. The author wanted you to learn that if you believe in yourself, you will succeed. Equally important she wanted you to learn not to jugde a book by its cover. You can learn from these lessons by Nicole's success!

Do you believe in yourself? Well if you do you will succeed. That is one lesson the author wanted you to learn from Nicole's success. The author said "that people didn't believe she could hit the baseball" which made Nicole believe it too so she couldn't hit the ball.

This proves that since Nicole didn't believe in herself so she didn't succeed. The author also mentions that her friend was yelling words of encouragment and that made Nicole start to feel better about it. She started to believe in herself more and more and she finally hits the ball! This shows that now that Nicole believed she could do it and was confident so she succeed and hits that ball! I know that if you are confident in yourself you shall always come out on top just like Nicole!

You should never judge a book by its cover, and that what the author is teaching with Nicole's success. The author said that people called Nicole and her friend shrimps and how no one thought Nicole could hit a ball and she wounds up suprising them all by hitting a

home run. This means that no one thought Nicole was good because she was small and all but she was exactly very good! Which proves the lesson-never judge a book by its cover! I know that you can't judge a person by how you look because someone could be really ugly and be really nice or they could be pretty and be very mean.

What starts with a S, ends with an D, and is what Nicole did? SUCCEED! By Nicole succeeding, I learned that if you believe in yourself, you will succeed. In addition, you shouldn't judge a book by its cover. I learned 2 very important lessons from Nicole.

*The student demonstrates an accurate understanding of important information by focusing on key ideas. The student uses relevant text references (...*people didn't believe she could hit the baseball which made Nicole believe it too...her friend was yelling words of encouragment...she finally hits the ball*). Text is integrated with interpretation throughout, resulting in a balanced piece (...*she wanted you to learn not to jugde a book by its cover...now that Nicole believed she could do it and was confident so she succeed and hits that ball...no one thought Nicole was good because she was small...*).

| Grade: 5 | Sample: 6 | Score: 4 |

DIRECTIONS ▶ Make sure you

- Read the question completely before you start to write your answer,
- Write your answer to the question in your own words,
- Write as clearly as you can so that another person can read your answer and understand what you were thinking,
- Read over your answer to see if you need to rewrite any part of it.

I think that the author wants the reader to learn that with a little encouragement, you can do great things from Nicole's sucess. The author states that in the beginning of the story, Nicole and her friend were picked on during the game because no one thought they were any good. The pitcher, Amanda, told everyone to start moving in. This means that since they weren't very confident, nobody had any respect for them. Their playing got worse. This is like when I was playing kickball When I went up to bat, everyone started moving in. That hurt my feelings, and made me play worse just like Nicole.

The author also states that after Nicole's

friend starts encouraging her, she actually hits the ball for the first time at school. It is a foul ball, but Nicole is still proud of it. What that means is that even though it was a foul, everyone was shocked and for Nicole it was like way out of the park.

At the end of the story, the author says that after the foul, the fielders got up and showed they were ready for real action. Aided by her friend's compliments, Nicole straightens up and fixes her position. The ball is pitched, and Nicole swings the bat with a whole lot of power behind it. It turned out to be a home run! To me, this says that if people are nicer, and you play right, you can win big. Nicole was no longer called shrimp or teased. This is just like that kickball game, when nobody thought I could even make it 5 feet, and to everyone's amazement the

ball soared over all of their heads, and I got a home run! Everyone congradulated me after that. Even the boys and the people on the other team!

The student demonstrates an accurate understanding of important information by focusing on key ideas. The student uses relevant text references (…Nicole and her friend were picked on…no one thought they were any good…after the foul, the fielders got up and showed they were ready…Nicole swings the bat…It turned out to be a home run!*). Text is integrated with interpretation throughout, resulting in a balanced piece (*…since they weren't very confident, nobody had any respect for them…Aided by her friend's compliments, Nicole straightens up…if people are nicer, and you play right, you can win big*). The student makes connections to other situations by comparison (*…when I was playing kickball When I went up to bat, everyone started moving in. That hurt my feelings, and made me play worse just like Nicole*).

Illinois Standards Achievement Test
Mathematics Samples

Structure of the Grade 5 Mathematics ISAT

ISAT Mathematics testing in spring 2011 will consist of 30 norm-referenced items, as well as 45 criterion-referenced items, some of which will be used for developmental purposes. The 30 norm-referenced items are an abbreviated form of the *Stanford 10 Mathematics Problem Solving* assessment, developed by Pearson, Inc. The 45 criterion-referenced items are all written by Illinois educators and pilot tested with Illinois students.

Item Formats

All 75 items are aligned to the *Illinois Mathematics Assessment Framework*, which defines the elements of the Illinois Learning Standards that are suitable for state testing.

Multiple-choice items require students to read, reflect, or compute, and then to select the alternative that best expresses what they believe the answer to be. This format is appropriate for quickly determining whether students have achieved certain knowledge and skills. Well-designed multiple-choice items can measure student knowledge and understanding, as well as students' selection and application of problem-solving strategies. A carefully constructed multiple-choice item can assess any of the levels of mathematical complexity from simple procedures to sophisticated concepts. They can be designed to reach beyond the ability of students to "plug-in" alternatives or eliminate choices to determine a correct answer. Such items are limited in the extent to which they can provide evidence of the depth of students' thinking.

Short-response items pose similar questions as multiple-choice items and provide a reliable and valid basis for extrapolating about students' approaches to problems. These items reduce the concern about guessing that accompanies multiple-choice items. The short-response items are scored with a rubric and count as 5% of the scale score of the test.

Extended-response items require students to consider a situation that demands more than a numerical response. These items require students to model, as much as possible, real problem solving in a large-scale assessment context. When an extended-response item poses a problem to solve, the student must determine what is required to "solve" the problem, choose a plan, carry out the plan, and interpret the solution in terms of the original situation. Students are expected to clearly communicate their decision-making processes in the context of the task proposed by the item (e.g., through writing, pictures, diagrams, or well-ordered steps). The extended-response items are scored with a rubric and count as 10% of the scale score of the test.

Scoring Extended- and Short-Response Items
Extended- and short-response items are evaluated according to an established scoring scale, called a rubric, developed from a combination of expectations and a sample of actual student responses. Such rubrics must be particularized by expected work and further developed by examples of student work in developing a guide for scorers. Illinois educators play a substantial role in developing these guides used for the scoring of the short- and extended-response items. Committees of mathematics educators from throughout the state attend a validation meeting, during which they use the mathematics scoring rubrics to establish task-specific criteria that are used to score all short- and extended-response items consistently and systematically.

Answer Document for Grade 5 Mathematics ISAT

Students in grade 5 respond to all test items in a separate answer document. Test administrators should monitor students carefully during testing to make sure students are using the appropriate pages of the answer document, especially for the short- and extended-response items.

Mathematics Sessions

All standard time administration test sessions are a minimum of 45 minutes in length. Any student who is still actively engaged in testing when the 45 minutes have elapsed will be allowed up to an additional 10 minutes to complete that test session. More details about how to administer this extra time will appear in the *ISAT Test Administration Manual*. This policy does not affect students who already receive extended time as determined by their IEP.
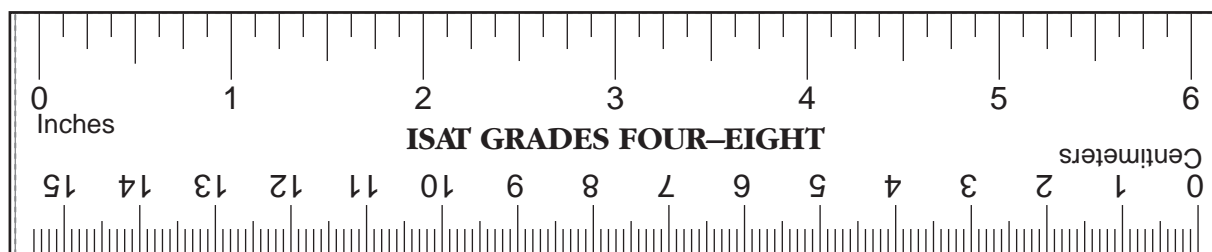
Mathematics ISAT Grade 5	
Session 1 **45 minutes**	40 multiple-choice items (30 of these are an abbreviated form of the *Stanford 10*.)
Session 2 **45 minutes**	30 multiple-choice items 3 short-response items
Session 3 **45 minutes**	2 extended-response items
(Some items will be pilot items.)	

Calculator Use for Grade 5 Mathematics ISAT

All students in grade 5 are allowed to use a calculator during all sessions of the mathematics assessment. Students are allowed to use a calculator as long as the calculator does not have any prohibited features as noted in the Calculator Use Policy for the ISAT Mathematics Tests (http://www.isbe.net/assessment/pdfs/2010/calculator_ISAT.pdf). Schools, teachers, and parents should be advised that when students attempt to use calculators with which they are unfamiliar, their performance may suffer. In a like manner, students who are not taught when and how to use a calculator as part of their regular mathematics instructional program are also at risk.

Rulers for Grade 5 Mathematics ISAT

All students in grade 5 will be provided with a ruler to use during all sessions of the mathematics assessment. This ruler will allow students to measure in both inches and centimeters.

Scratch Paper for Grade 5 Mathematics ISAT

Students must be provided with blank scratch paper to use during only session 1. Only session 1 contains norm-referenced items, which were normed under such conditions. Students may not use scratch paper during session 2 or session 3, but they may use the test booklet itself as scratch paper. However, students must show their work, when required, for each short-response item in session 2 on the appropriate page in the answer document. Students must show their work for each extended-response item in session 3 on the appropriate pages in the answer document.

1

In the 1988 Olympic Games, Florence Griffith Joyner of the United States set an Olympic record for the women's 100-meter dash. Her time was ten and sixty-two hundredths seconds. How is this time written as a number?

A   1.62 seconds

B   10.62 seconds

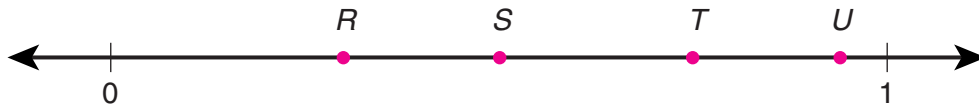**C**   100.62 seconds

D   1062.00 seconds

2

Which is another way to express 465 × 4?

A   4 × 6 × 5 × 4

B   400 + 60 + 5 + 4

C   465 × 465 × 465 × 465

D   465 + 465 + 465 + 465

GO ON▶

3

Which letter on the number line below best represents the location of $\frac{3}{4}$?

A R　　　　**B** S　　　　**C** T　　　　**D** U

4

The table below shows the area in square miles for 5 different states. Carlos calculated the sum of the areas of 3 states. He found that the total number of square miles for these three states is 119,156 square miles.

State Square Miles

State	Square Miles
Illinois	55,593
Hawaii	6,423
Ohio	40,953
Vermont	9,249
Wisconsin	54,314

Which 3 states did Carlos include in his total?

A   Illinois, Vermont, Wisconsin
B   Vermont, Wisconsin, Hawaii
C   Wisconsin, Ohio, Vermont
D   Ohio, Hawaii, Illinois

5

Lisa had $40.80. She spent $14.50 for a CD, $9.57 for a shirt, and $8.95 for lunch.

Exactly how much money should Lisa have left?

A $1.85   **C** $24.07
B $7.78   **D** $47.78

6

A pizza was cut into 8 equal pieces. Ben ate 2 pieces, and Sam ate 3 pieces.
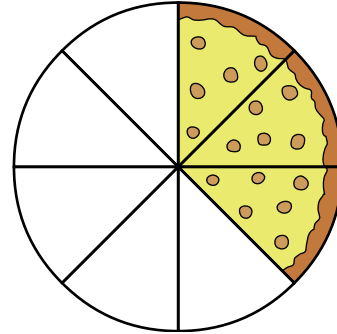
What fractional part of the pizza did Ben and Sam eat?

$\dfrac{3}{8}$ $\dfrac{3}{5}$ $\dfrac{5}{8}$ $\dfrac{8}{5}$
A   **B**   **C**   **D**

7

What value for n makes this number sentence true?

$$65 + n + 141 = 141 + 9 + 65$$

A   9
B   76
C   206
D   215

GO ON▶

8

All items listed below are on sale for 50% off the regular price.

Items on Sale

Item	Regular Price (including tax)
Hat	$ 10.95
Shirt	$ 21.05
CD	$ 15.95
Coat	$ 21.92

Which is closest to the amount of money needed to buy 1 of each item listed, at the sale price?

$30	$35	$60	$70
A	**B**	**C**	**D**

9

Six out of every ten fifth-grade students in a school have a pet. There are 50 fifth-grade students in this school.

What is the total number of fifth-grade students in this school who have a pet?

A   6 students
B   10 students
C   30 students
D   66 students

10

Anish went to sleep at 9:00 P.M. and woke up at 6:30 A.M.

What is the total number of hours Anish slept?

A $3\frac{1}{2}$ hours

B $7\frac{1}{2}$ hours

C $8\frac{1}{2}$ hours

D $9\frac{1}{2}$ hours

11

Field Day begins at 8:45 A.M. and ends at 2:20 P.M. How long is Field Day?

A   5 hours and 25 minutes
B   5 hours and 35 minutes
C   6 hours and 25 minutes
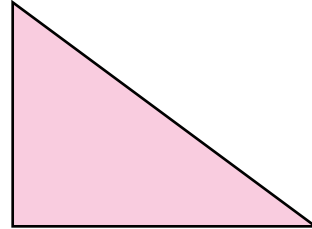**D**   6 hours and 35 minutes

GO ON ▶

12

Which unit of measure would be the best to use to find the length of a pencil?

A   Mile
B   Inch
C   Foot
D   Yard

13

What is the perimeter of the figure below?

6 feet

5 feet

2 feet

10 feet

?

?

36 feet	28 feet	23 feet	13 feet
A	**B**	**C**	**D**

14

Use your centimeter ruler to help you answer this question.

Which is closest to the perimeter in centimeters of this triangle?

A   5 cm
B   7 cm
C   12 cm
D   15 cm

GO ON ▶
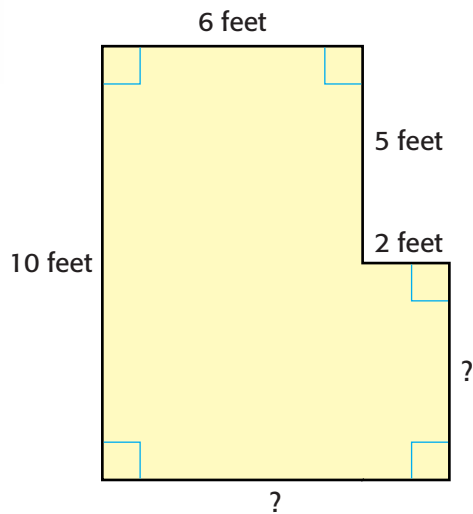
15

The dimensions of a rectangular prism are shown below.

2 in.

6 in.

5 in.
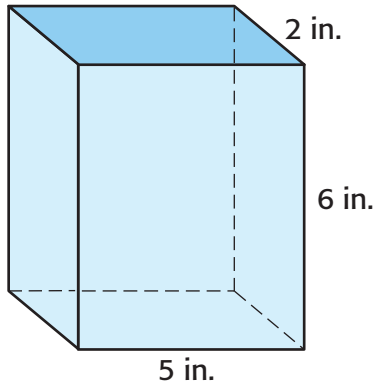
What is the volume of this rectangular prism?
(Volume = $l \times w \times h$)

A   13 cubic inches

B   30 cubic inches

C   60 cubic inches

D   104 cubic inches

16

The scale on Todd's map is 1 inch = 200 miles. The distance from his house to his friend's house on the map is $5\frac{1}{4}$ inches.

What is the distance in miles from Todd's house to his friend's house?

A   1,000 miles

B   1,050 miles

C   1,500 miles

D   24,000 miles

GO ON▶

17

Karl uses a multiplication rule to make the number pattern below. The 1st number in this pattern is 3.

3, 12, 48, 192, ___, ___

If the pattern continues in the same way, what should be the 6th number in this pattern?

384	768	1536	3072
A	**B**	**C**	**D**

18

Francine is 5 years older than her brother Mark. Mark's age is m.

Which expression represents Francine's age?
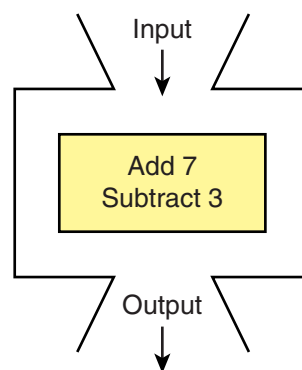
A $m - 5$
B $m \cdot 5$
C $m + 5$
D $m \div 5$

19

What is the value of $m + m - 3$ when $m = 4$?

1	5	11	13
A	**B**	**C**	**D**

20

The drawing below is an input-output machine.

Input

Add 7
Subtract 3

Output

Using this machine, when the input is 5, what is the output?

2	4	9	12
A	**B**	**C**	**D**

GO ON▶
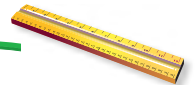
21

Mr. Jackson is 36 years old. His son is 8 years old. Let n represent the age of Mr. Jackson's wife. The ages of Mr. Jackson, his wife, and their son total 77.

Which correctly represents this information?

A $77 + 36 + 8 = n$
B $36 - n + 8 = 77$
C $77 - 36 + 8 = n$
D $36 + n + 8 = 77$

22

Brandon weighs 58 pounds. Nate weighs less than Brandon.

If Nate weighs n pounds, which of these is true?
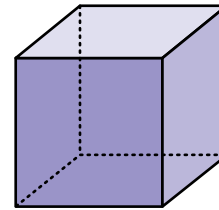
A $n < 58$ C $n > 58$
B $n = 58$ D $n + 58$

23

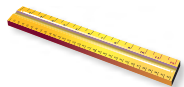What is the value of n?

$$50 \div n = 10$$

5	10	40	50
A	B	C	D

24

Which best describes a cube?

A   Eight faces, six vertices, nine edges
B   Six faces, five vertices, four edges
C   Six faces, eight vertices, twelve edges
D   Six faces, nine vertices, twelve edges

GO ON
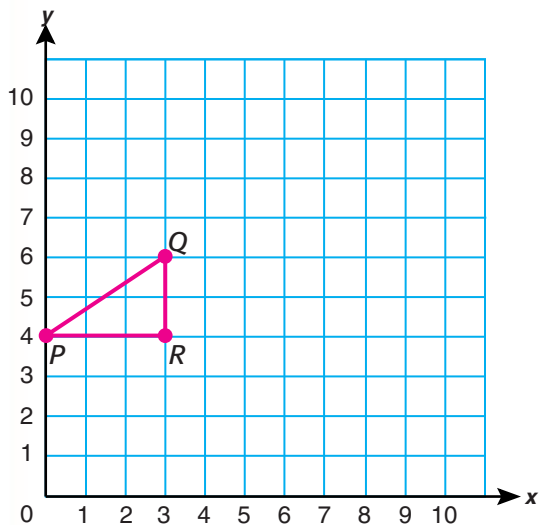
25

What is the length of each side of an equilateral triangle that has a perimeter of 18 inches?

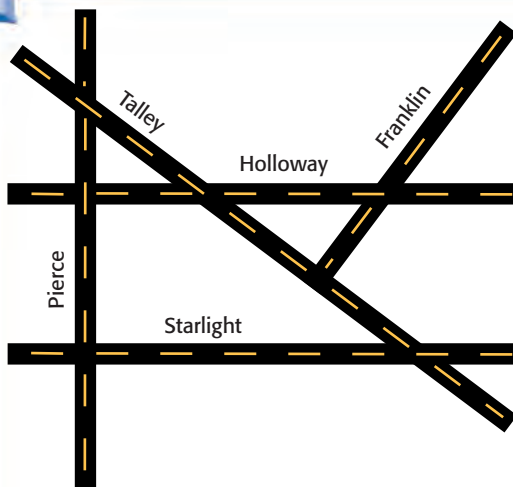| 18 in.	9 in.	7 in.	6 in.
A	**B**	**C**	**D**

26

What are the new coordinates of point *P* if Δ*PQR* is translated 3 units to the right and 2 units up?

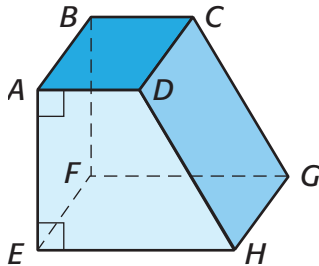| **A**	(2, 7)	**C**	(6, 3)
B	(3, 6)	**D**	(6, 6)

27

Which streets on this map appear to never intersect?

A   Talley and Franklin

B   Starlight and Pierce

C   Franklin and Holloway

D   Holloway and Starlight

GO ON▶

46

28

Which statement is true about the prism shown below?

A $\overline{AD}$ intersects $\overline{BF}$.
B $\overline{BC}$ is parallel to $\overline{CG}$.
C $\overline{GH}$ is parallel to $\overline{AE}$.
D $\overline{AE}$ is perpendicular to $\overline{EH}$.

29

Which best describes the type of angle made by the hands on the clock shown below?

A Obtuse   **C** Acute
B Right   **D** Straight

30

What 2-dimensional shapes are used to create a triangular pyramid?

A 4 triangles
B 1 square and 3 triangles
C 1 square and 4 triangles
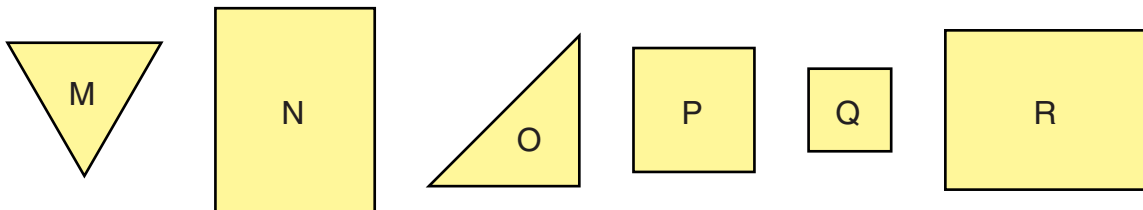**D** 3 rectangles and 2 triangles

GO ON ▶

31

What three-dimensional figure could be made by folding the pattern along the dashed line segments?
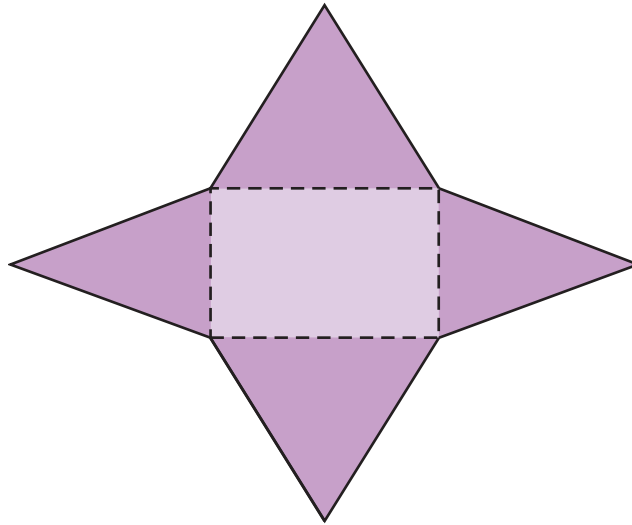
- **A**   Cube
- **B**   Rectangular prism
- **C**   Triangular pyramid
- **D**   Rectangular pyramid

32

Which figures appear to be congruent?

O and M	N and P	N and R	P and Q
A	**B**	**C**	**D**

GO ON ▶

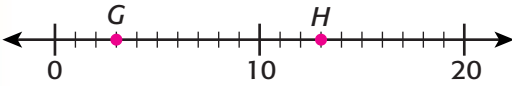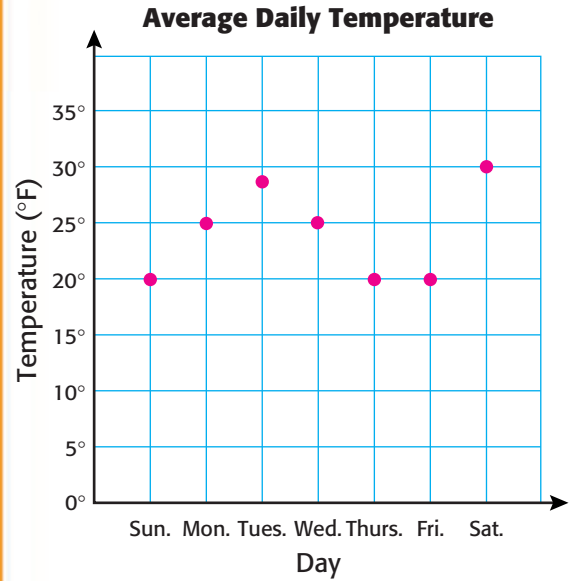**33**

Which is closest to the distance from point *G* to point *H* on the number line below?

A   3 units

B   10 units

C   13 units

D   26 units

34

The graph below shows the average daily temperatures for the town of Jonesboro during a seven-day period.
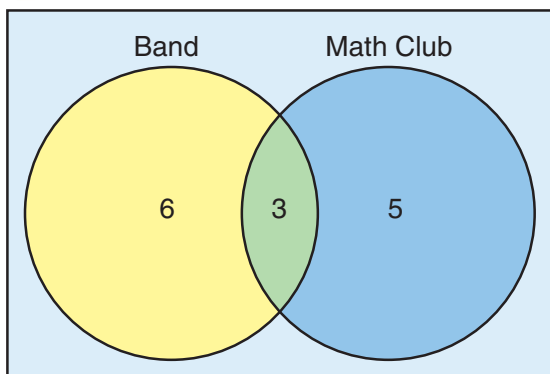
Average Daily Temperature

Which is closest to the difference in the average daily temperatures for Monday and Wednesday?

0 °F	5 °F	10 °F	25 °F
A	**B**	**C**	**D**

GO ON ▶
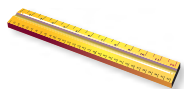
35

The Venn diagram below shows student participation in Band and Math Club.

Band — Math Club

6   3   5

Exactly how many students participate in Math Club?

A   14
B   8
C   5
D   3

36

The high temperatures each day during the first week of August were 90°, 87°, 95°, 96°, 93°, 88°, and 88°.

What was the mean (average) high temperature for the week?

88°	90°	91°	96°
A	B	C	D

37

Amy's scores on 7 spelling tests are shown below.

Spelling Scores

Score
81
78
80
96
92
92
90

What is the range of Amy's spelling test scores listed in the table?

18	87	90	92
A	B	C	D

38

The spinner below is divided into six sections of equal size.
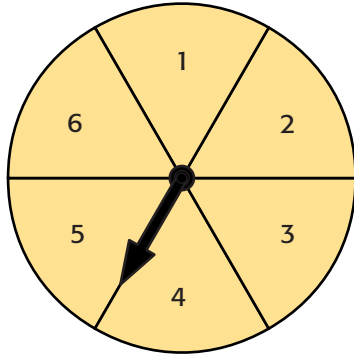
What is the probability that the arrow will land in a space labeled with an odd number?

$\dfrac{1}{6}$
A

$\dfrac{2}{6}$
B

$\dfrac{3}{6}$
C

$\dfrac{4}{6}$
D

39

Tim's mother put these cookies on a plate.

Which kind of cookie would Tim most likely get if he takes one without looking?

A

C

B

D

GO ON

40

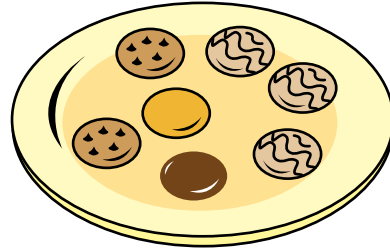The chart below shows Jordan's choices for lunch.

Lunch Menu

Sandwich	Side	Drink
Bologna Tuna Grilled cheese	French fries Potato chips	Milk Juice

How many different combinations of 1 sandwich, 1 side, and 1 drink could Jordan choose?

3	6	7	12
A	**B**	**C**	**D**

STOP

Answer Key with Assessment Objectives Identified

Item Number	Correct Answer	Assessment Objective
1	B	**6.5.05** Read, write, recognize, and model decimals and their place values through thousandths.
2	D	**6.5.06** Represent multiplication as repeated addition.
3	C	**6.5.10** Identify and locate whole numbers, halves, fourths, and thirds on a number line.
4	A	**6.5.12** Solve problems and number sentences involving addition, subtraction, multiplication, and division using whole numbers.
5	B	**6.5.13** Solve problems and number sentences involving addition and subtraction of decimals through hundredths (with or without monetary labels).
6	C	**6.5.14** Model situations involving addition and subtraction of fractions.
7	A	**6.5.15** Solve problems involving the commutative, distributive, and identity properties of operations on whole numbers [e.g., $37 \times 46 = 46 \times 37, 270 \times 5 = (200 \times 5) + (70 \times 5)$].
8	B	**6.5.16** Make estimates appropriate to a given situation with whole numbers, fractions, and decimals.
9	C	**6.5.18** Solve problems involving proportional relationships, including unit pricing (e.g., one apple costs 20¢, so four apples cost 80¢).
10	D	**7.5.01** Solve problems involving elapsed time in compound units.
11	B	**7.5.01** Solve problems involving elapsed time in compound units.
12	B	**7.5.02** Select and use appropriate standard units and tools to measure length (to the nearest ¼ inch or mm), mass/weight, capacity, and angles.
13	A	**7.5.03** Solve problems involving the perimeter and area of a triangle, rectangle, or irregular shape using diagrams, models, and grids or by measuring or using given formulas (may include sketching a figure from its description).
14	C	**7.5.03** Solve problems involving the perimeter and area of a triangle, rectangle, or irregular shape using diagrams, models, and grids or by measuring or using given formulas (may include sketching a figure from its description).
15	C	**7.5.05** Determine the volume of a right rectangular prism using an appropriate formula or strategy.
16	B	**7.5.07** Solve problems involving map interpretation (e.g., one inch represents five miles, so two inches represent ten miles).
17	D	**8.5.01** Determine a missing term in a sequence, extend a sequence, and identify errors in a sequence when given a description or sequence.

Item Number	Correct Answer	Assessment Objective
18	C	**8.5.03** Write an expression using variables to represent unknown quantities.
19	B	**8.5.04** Evaluate algebraic expressions with a whole number variable value (e.g., evaluate $m + m + 3$ when $m = 4$).
20	C	**8.5.05** Demonstrate, in simple situations, how a change in one quantity results in a change in another quantity (e.g., input–output tables).
21	D	**8.5.07** Represent problems with equations and inequalities.
22	A	**8.5.07** Represent problems with equations and inequalities.
23	A	**8.5.08** Solve for the unknown in an equation with one operation (e.g., $2 + n = 20$, $n \div 2 = 6$).
24	C	**9.5.02** Identify and describe three–dimensional shapes (cubes, spheres, cones, cylinders, prisms, and pyramids) according to their characteristics (faces, edges, vertices).
25	D	**9.5.03** Solve problems using properties of triangles (e.g., sum of interior angles of a triangle is 180°).
26	B	**9.5.07** Identify, describe, and predict results of reflections, translations, and rotations of two–dimensional shapes.
27	D	**9.5.08** Identify and sketch parallel, perpendicular, and intersecting lines.
28	D	**9.5.08** Identify and sketch parallel, perpendicular, and intersecting lines.
29	A	**9.5.09** Identify and sketch acute, right, and obtuse angles.
30	A	**9.5.10** Identify the two–dimensional components of a three–dimensional object.
31	D	**9.5.11** Identify a three–dimensional object from its net.
32	C	**9.5.13** Identify congruent and similar figures by visual inspection.
33	B	**9.5.15** Determine the distance between two points on a horizontal or vertical number line in whole numbers.
34	A	**10.5.01** Read, interpret, and make predictions from data represented in a pictograph, bar graph, line (dot) plot, Venn diagram (with two circles), chart/table, line graph, or circle graph.
35	B	**10.5.01** Read, interpret, and make predictions from data represented in a pictograph, bar graph, line (dot) plot, Venn diagram (with two circles), chart/table, line graph, or circle graph.
36	C	**10.5.03** Determine the mode, range, median (with an odd number of data points), and mean given a set of data or a graph.

Item Number	Correct Answer	Assessment Objective
37	A	**10.5.03** Determine the mode, range, median (with an odd number of data points), and mean given a set of data or a graph.
38	C	**10.5.04** Solve problems involving the probability of a simple event, including representing the probability as a fraction between zero and one.
39	C	**10.5.04** Solve problems involving the probability of a simple event, including representing the probability as a fraction between zero and one.
40	D	**10.5.05** Apply the fundamental counting principle in a simple problem (e.g., How many different combinations of one-scoop ice-cream cones can be made with 3 flavors and 2 types of cones?).

To view all the mathematics assessment objectives, download the *Illinois Mathematics Assessment Framework* for Grades 3–8 online at www.isbe.net/assessment/IAFindex.htm.

Mathematics Short-Response
Scoring Rubric
Followed by Student Samples

Mathematics Short-Response Scoring Rubric

The following rubric is used to score the short-response items for all grade levels.

SCORE LEVEL	DESCRIPTION
2	Completely correct response, including correct work shown and/or correct labels/units if called for in the item
1	Partially correct response
0	No response, or the response is incorrect

Using Short-Response Samples

Beginning with the spring 2008 ISAT, the sample short-response question and answer (shown below) that appeared in the 2006 and 2007 ISAT test directions will no longer be included in the directions immediately prior to session 2. ISBE encourages educators to practice these types of items with students during the course of the school year so they are familiar with them prior to ISAT testing.

SAMPLE SHORT-RESPONSE QUESTION

Sam can buy his lunch at school. Each day, he wants to buy juice that costs 50¢, a sandwich that costs 90¢, and fruit that costs 35¢.

Exactly how much money does Sam need to buy lunch for 5 days?

Show your work and label your answer.

SAMPLE SHORT-RESPONSE ANSWER

50¢ + 90¢ + 35¢ = $1.75
for each day

My answer
$8.75

    3 2
    1.75
    1.75
    1.75
    1.75
  + 1.75
  ———————
    $8.75 for five days

Please refer to the 2008 and 2009 ISAT sample books for additional short-response items and student samples (online at www.isbe.net/assessment/htmls/sample_books.htm).

Blank Short-Response Template

Mathematics - Session 2   Question 1

Write your response to question 1 on this page. Only what you write on this page will be scored.

Mathematics Short-Response Sample Item 1

Below is a short-response sample item, followed by 3 samples of student responses.

This short-response sample item is classified to assessment objective 10.5.03, "Determine the mode, range, median (with an odd number of data points), and mean, given a set of data or a graph."

1

The five students listed below read the following number of books during a week.

- Joe read 3 books.
- Belinda read 7 books.
- Carlos read 8 books.
- Ian read 4 books.
- Keisha read 8 books.

What is the mean (average) number of books read by these five students during this week?

Show your work.

Short-Response Student Sample 1A

$$8 + 7 \rangle 15$$

$$8 + 4 \rangle 12$$

$$3 - 3$$

$$30$$

(6 books)

$$5\overline{)30}$$
$$-30$$
$$0$$

First I added up all the books read and got 30. Then I divided it by the number of kids, 5, and got a mean of 6 books.

Short-Response Student Sample 1A

Rubric Score Point = 2

Note: The student correctly identifies the mean number of books read (*6 books*) and shows adequate work.

Short-Response Student Sample 1B

First I took 3+7+8+4+8 and on the calculator and got 30. Then I divided 5 by 30 to get 6.

The mean is 6.

Short-Response Student Sample 1B

Rubric Score Point = 2

Note: The student correctly identifies the mean number of books read (*The mean is 6*) and shows adequate work.

Short-Response Student Sample 1C

- Joe read 3 books
- Belinda read 7 books
- Calos read 8 books
- Ian read 4 books
- Keisha read 8 books

$$mean = \frac{3+7+8+4+8}{5}$$

Short-Response Student Sample 1C

Rubric Score Point = 1

Note: Although no final answer is given, the student shows the correct set-up for finding the mean number of books [*mean = (3 + 7 + 8 + 4 + 8)/5*] and clearly states it as the mean.

Mathematics Short-Response Sample Item 2

Below is a short-response sample item, followed by 3 samples of student responses.

This short-response sample item is classified to assessment objective 8.5.09, "Solve word problems involving unknown quantities."

2

The 5th grade students were asked to vote for their one favorite sport.

- 11 students voted for football.
- 14 students voted for baseball.
- 3 students voted for tennis.
- Half as many students voted for soccer than baseball.
- Twice as many students voted for basketball than football.

How many 5th grade students voted?

Show your work.

Short-Response Student Sample 2A

```
   11  football              11  football
   14  baseball           +  11  football
+   3  tennis               22  basketball
   ──────
   28      three only

baseball
14 ÷ 2 = 7 soccer           22  basketball


  Answer:                   11 football
                            22 basketball
  57 people                 14 baseball
     voted.                  7 soccer
                          + 3 tennis
                            ──────
                            57
```

Short-Response Student Sample 2A

Rubric Score Point = 2

Note: The student correctly states the total number of votes (*57*). Correct work is shown by finding the number of students who voted for basketball (*11 + 11 = 22*) and soccer (*14/2 = 7*) and then adding the votes received for each of the five sports (*11 + 22 + 14 + 7 + 3 = 57*) to find the total number of students who voted.

Short-Response Student Sample 2B

$$\begin{array}{r} 11 \\ +14 \\ \hline 25 \end{array} \qquad \begin{array}{r} 25 \\ +3 \\ \hline 28 \end{array} \qquad \begin{array}{r} 14 \\ \div 2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 28 \\ \times 7 \\ \hline 35 \end{array} \qquad \begin{array}{r} 11 \\ +11 \\ \hline 22 \end{array} \qquad \begin{array}{r} 35 \\ +22 \\ \hline 57 \end{array}$$

Answer Box

57 fith graders voted.

Short-Response Student Sample 2B

Rubric Score Point = 2

Note: The student identifies the number of votes for soccer (*7*) and basketball (*22*) and has a correct total number of votes (*57*). The work is shown for adding each sport to find the total as well as the work for finding the number who voted for soccer (*14/2*) and basketball (*11 + 11*).

Short-Response Student Sample 2C

11 football
14 baseball
3 tennis
22 basketball
6 soccer
56 5th graders

First, I added up all the votes I knew, then for soccer and basketball I doubled the sports they told me to and got my answer. 56 5th graders voted.

Short-Response Student Sample 2C

Rubric Score Point = 1

Note: The student correctly identifies the number of students who voted for basketball (*22*), but finds an incorrect number of students who voted for soccer. The student then uses those amounts in the summation of the five sports without another mathematical error (*11 + 14 + 3 + 22 + 6 = 56*).

Mathematics Extended-Response Scoring Rubric
Followed by Student Samples

Mathematics Extended-Response Scoring Rubric

The following rubric is used to score the extended-response items for all grade levels. A student-friendly version of this extended-response scoring rubric is available online at www.isbe.net/assessment/math.htm.

SCORE LEVEL	MATHEMATICAL KNOWLEDGE: Knowledge of mathematical principles and concepts which result in a correct solution to a problem.	STRATEGIC KNOWLEDGE: Identification and use of important elements of the problem that represent and integrate concepts which yield the solution (e.g., models, diagrams, symbols, algorithms).	EXPLANATION: Written explanation of the rationales and steps of the solution process. A justification of each step is provided. Though important, the length of the response, grammar, and syntax are not the critical elements of this dimension.
4	• shows complete understanding of the problem's mathematical concepts and principles • uses appropriate mathematical terminology and notations including labeling answer if appropriate • executes algorithms and computations completely and correctly	• identifies all important elements of the problem <u>and</u> shows complete understanding of the relationships among elements • shows complete evidence of an appropriate strategy that would correctly solve the problem	• gives a complete written explanation of the solution process; clearly explains <u>what</u> was done and <u>why</u> it was done • may include a diagram with a complete explanation of all its elements
3	• shows nearly complete understanding of the problem's mathematical concepts and principles • uses mostly correct mathematical terminology and notations • executes algorithms completely; computations are generally correct but may contain minor errors	• identifies most of the important elements of the problem and shows a general understanding of the relationships among them • shows nearly complete evidence of an appropriate strategy for solving the problem	• gives a nearly complete written explanation of the solution process; clearly explains <u>what</u> was done and begins to address <u>why</u> it was done • may include a diagram with most of its elements explained
2	• shows some understanding of the problem's mathematical concepts and principles • uses some correct mathematical terminology and notations • may contain major algorithmic or computational errors	• identifies some important elements of the problem but shows only limited understanding of the relationships among them • shows some evidence of a strategy for solving the problem	• gives some written explanation of the solution process; either explains <u>what</u> was done or addresses <u>why</u> it was done • explanation is vague, difficult to interpret, or does not completely match the solution process • may include a diagram with some of its elements explained
1	• shows limited to no understanding of the problem's mathematical concepts and principles • may misuse or fail to use mathematical terminology and notations • attempts an answer	• fails to identify important elements or places too much emphasis on unrelated elements • reflects an inappropriate strategy for solving the problem; strategy may be difficult to identify	• gives minimal written explanation of the solution process; may fail to explain <u>what</u> was done and <u>why</u> it was done • explanation does not match presented solution process • may include minimal discussion of the elements in a diagram; explanation of significant elements is unclear
0	• no answer attempted	• no apparent strategy	• no written explanation of the solution process is provided

Using Extended-Response Samples

Beginning with the spring 2008 ISAT, the sample extended-response problem and solution (shown below) that appeared in the 2006 and 2007 ISAT test directions will no longer be included in the directions immediately prior to session 3. ISBE encourages educators to practice these types of items with students during the course of the school year so they are familiar with them prior to ISAT testing.

SAMPLE EXTENDED-RESPONSE PROBLEM

Mrs. Martin wants to put tiles on the floor by the front door of her house. She wants to use 3 different colors of tiles in her design.
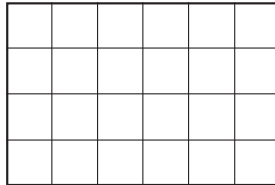
She also wants

$\frac{1}{2}$ of the tiles to be blue,

$\frac{1}{4}$ of the tiles to be gray, and

$\frac{1}{4}$ of the tiles to be red.

Use the grid below to design a floor for Mrs. Martin. Label each tile with the first letter of the color that should be placed there.

Show all your work. Explain in words how you found your answer. Tell why you took the steps you did to solve the problem.

SAMPLE EXTENDED-RESPONSE SOLUTION

| B | B | B | B | B | B | $\rangle \frac{1}{2}$ blue
| B | B | B | B | B | B |
| G | G | G | G | G | G | $\leftarrow \frac{1}{4}$ gray
| R | R | R | R | R | R | $\leftarrow \frac{1}{4}$ red

First, I know that there are 4 equal rows, so 2 rows is half and 1 row is $\frac{1}{4}$. So I made 2 rows B for blue because she wants half the tiles blue. Then I made 1 row G for gray because she wants $\frac{1}{4}$ of the tiles to be gray. Since she wants gray and red to be the same amount of tiles, I made the last row R for red.

Please refer to the 2008 and 2009 ISAT sample books for additional extended-response items and student samples (online at www.isbe.net/assessment/htmls/sample_books.htm).

Blank Extended-Response Template

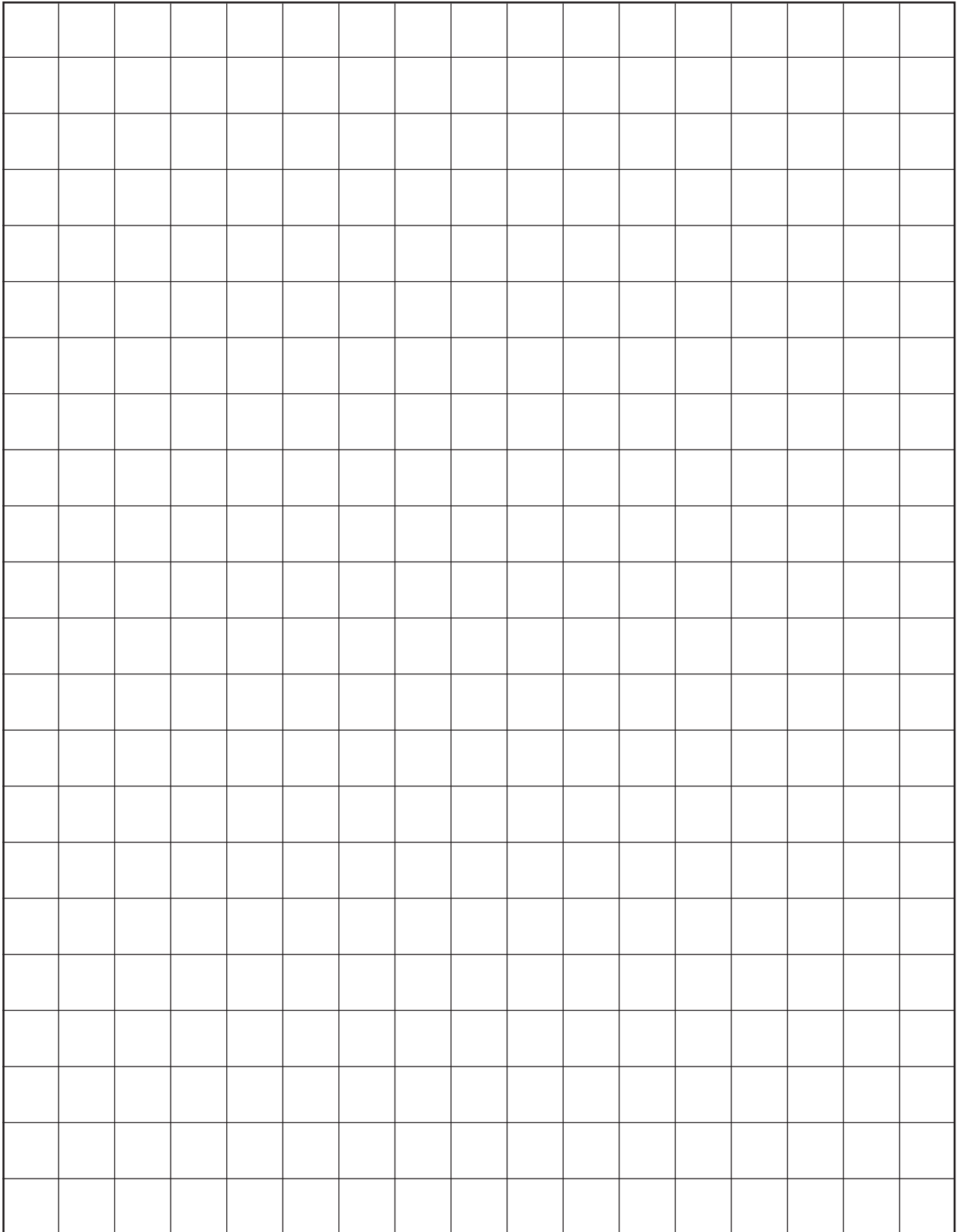**Mathematics - Session 3**   **Problem 1**

DIRECTIONS ▷

Make sure you
– show all your work in solving the problem,
– clearly label your answer,
– write in words how you solved the problem,
– write in words why you took the steps you did to solve the problem, and
– write as clearly as you can.

Mathematics - Session 3   **Problem 1 (continued)**

Mathematics Extended-Response Sample Item 1

Below is an extended-response sample item, followed by 3 student samples.

This extended-response sample item is classified to assessment objective 7.5.07, "Solve problems involving map interpretation (e.g., one inch represents five miles, so two inches represent ten miles)."

1

Use your centimeter ruler to help you answer this problem.

Below is a map showing the locations of Jefferson City, Chandler, and Lake Sunshine.
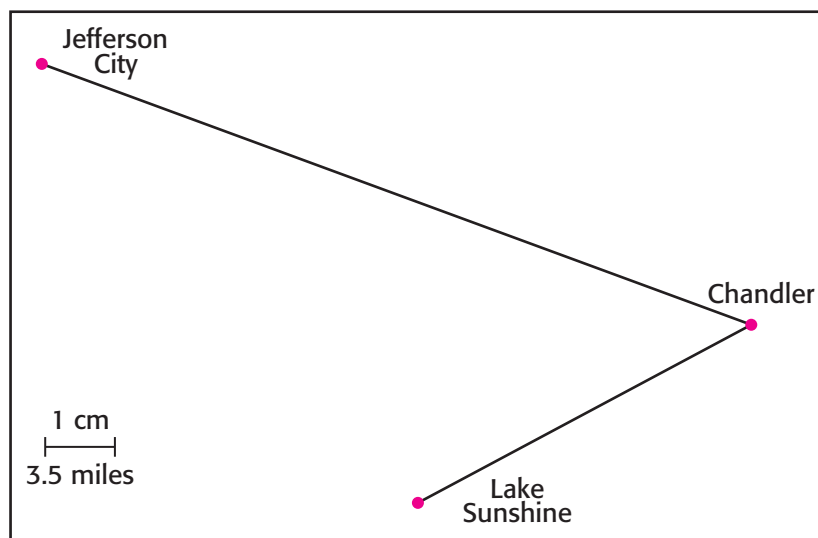
What is the total distance in miles from Jefferson City to Chandler to Lake Sunshine?

Show all your work. Explain in words how you found your answer. Write why you took the steps you did to solve the problem.

Extended-Response Student Sample 1A

DIRECTIONS ▶

Make sure you
– show all your work in solving the problem,
– clearly label your answer,
– write in words how you solved the problem,
– write in words why you took the steps you did to solve the problem, and
– write as clearly as you can.

Jefferson
City to Chandler = 10cm

Chandler to Lake
Sunshine = 5cm

10cm + 5cm = 15cm

1cm = 3.5 miles   15cm × 3.5 =
                                    52.5miles

It is 52.5 miles from
Jefferson City, to Chandler,
to Lake Sunshine

Extended-Response Student Sample 1A Continued

First, I measured from Jefferson City to Chandler in cm. Because I was trying to find the total # of cm. It was 10cm from Jeff. to Chandler. Next I measured the distance between Chandler, and Lake Sunshine. I got 5cm. Next, I added the distances between the places and got 15cm. I did this because I wanted to find the total distance between the places. Lastly, I did 15 × 3.5 and got 52.5. I did this because on this map 1cm = 3.5 miles and the problem asks for the total number of miles. So I came out with 52.5 miles between Jefferson City, Chandler, and Lake Sunshine.

Extended-Response Student Sample 1B

DIRECTIONS ▶

Make sure you
– show all your work in solving the problem,
– clearly label your answer,
– write in words how you solved the problem,
– write in words why you took the steps you did to solve the problem, and
– write as clearly as you can.

Extended-Response Student Sample 1B Continued

First I read the problem. Next I took my ruler to figer out how many miles from Jefferson city to chandler to lake sunshine, from Jefferson city to chandler was 35 miles. from candler to lake Sunshine is 17.5 miles. finaly I took 17.50 and 28.00 and I got 52.50 miles.

52.50 is my anser.

```
  3.5
 ×10                          2
 ____                       350
  3.50                      350
  3.50          11          350
  3.50        28.00         350
  3.50         3.50         350
  3.50         3.50        ____
  3.50        _____        17.50
  3.50        35.00
  3.50        17.50
 _____        52.50
 2800
```
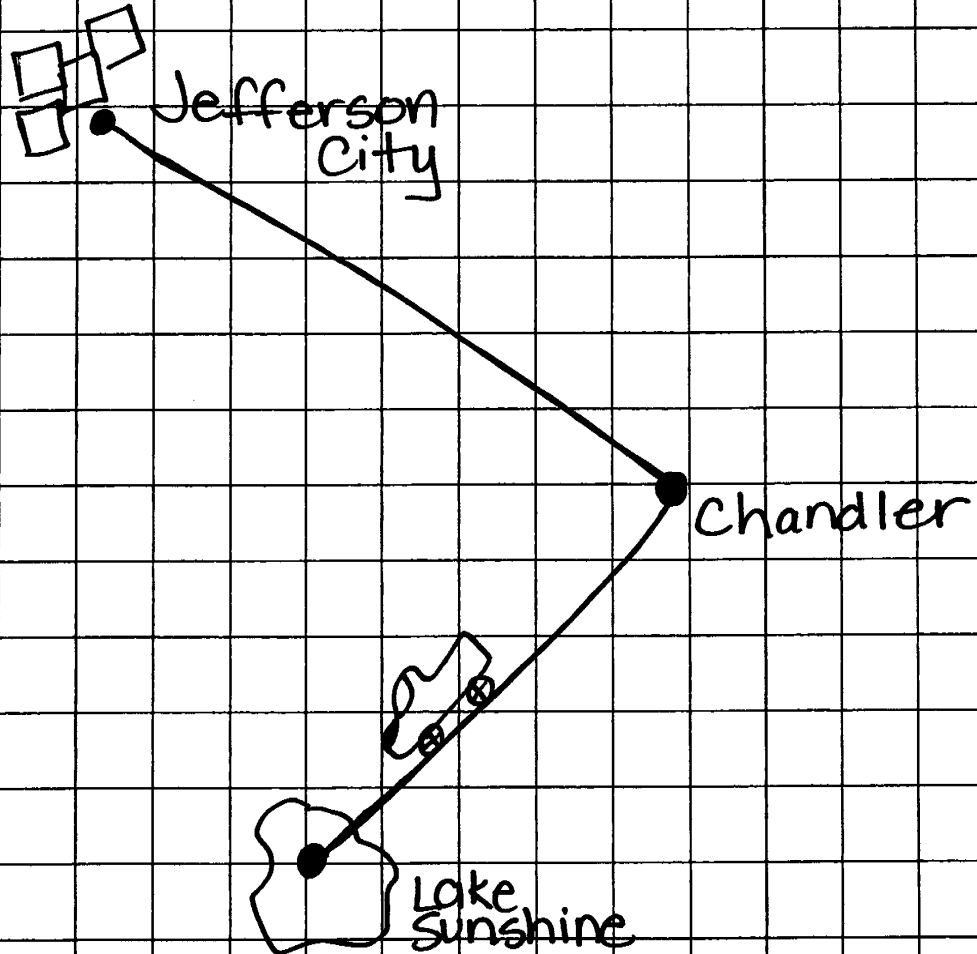
Extended-Response Student Sample 1C

DIRECTIONS

Make sure you
– show all your work in solving the problem,
– clearly label your answer,
– write in words how you solved the problem,
– write in words why you took the steps you did to solve the problem, and
– write as clearly as you can.

Extended-Response Student Sample 1C Continued

Jefferson City

Chandler

Lake Sunshine

and my anser was 15.5 mile

How I got my anser is I
took a rouler and mesred
how many centemeters it
was and insted of centemeters
I labold it miles.

Scoring Guide for "Scale Map of 3 Cities"

To solve this problem, students are asked to use a scale drawing to find the total distance from one point to the next point.

Extended-Response Student Sample 1A

MATHEMATICAL KNOWLEDGE	STRATEGIC KNOWLEDGE	EXPLANATION
4	**4**	**4**
This response shows complete understanding of the problem's mathematical concepts and principles. The student provides a correct solution (*52.5 miles*). All mathematical computations shown are correct (*10cm + 5cm = 15cm, 15cm x 3.5 = 52.5 miles*).	The response identifies all important elements of the problem and shows complete understanding of the relationship among them. The student uses an appropriate strategy and provides evidence of the distance of each leg in centimeters (*Jefferson City to Chandler = 10cm…Chandler to Lake Sunshine = 5cm*), adds the legs together to get a total distance in centimeters (*10cm + 5cm = 15cm*), and uses the scale to determine total miles (*15cm x 3.5 = 52.5 miles*).	The response clearly explains what was done (*I measured from Jefferson City to Chandler…I measured the distance between Chandler, and Lake Sunshine… added the distances between the places*) in the solution process and why it was done (*Because I was trying to find the total # of cm…I did this because I wanted to find the total distance between the places…I did this because on this map 1cm = 3.5 miles and the problem asks for the total number of miles*).

Extended-Response Student Sample 1B

MATHEMATICAL KNOWLEDGE	STRATEGIC KNOWLEDGE	EXPLANATION
4	**4**	**1**
The response shows complete understanding of the problem's mathematical concepts and principles. The student provides a correct solution (*52.50*). The initial set up of the solution (*3.5 x 10*) was not used and was replaced by work that is completely correct (*3.50 + 3.50 + 3.50 + 3.50 + 3.50 + 3.50 + 3.50 + 3.50 = 28.00, 28.00 + 3.50 + 3.50 = 35.00, 3.50 + 3.50 + 3.50 + 3.50 + 3.50 = 17.50, 35.00 + 17.50 = 52.50*).	The response identifies all important elements of the problem and shows complete understanding of the relationship among them. The student uses an appropriate strategy and provides evidence of determining the distance of each leg in cm, using those numbers to scale the distance using addition (adds 3.5 ten times to get a total of 35.00 and 3.5 five times to get a total of 17.50), and adding the scaled distances to get the total miles (*35.00 + 17.50 = 52.50*).	This response gives a minimal written explanation of the solution process. The use of a ruler to determine miles is not an acceptable explanation since the ruler is a centimeter ruler and the student did not explain the steps taken to convert centimeters to miles (*…took my ruler to figer out how many miles*). Additional explanations do not entirely match the presented process: (*I took 17.50 and 28.00 and I got 52.50 miles*) but the work shows (*28.00 + 3.50 + 3.50 = 35.00 + 17.50 = 52.50*).

Extended-Response Student Sample 1C

MATHEMATICAL KNOWLEDGE	STRATEGIC KNOWLEDGE	EXPLANATION
2	**2**	**2**
This response shows some understanding of the problem's mathematical concepts and principles. The student determines a total map distance (*15.5*) and does not scale the distance, but merely changes the label on the measured distance (*…took a rouler and mesred how many centemeters it was and insted of centemeters I labold it miles*).	The response shows some evidence of a strategy for solving the problem by identifying some important elements of the problem. The student does determine a total map distance in centimeters (*…took a rouler and mesred how many centemeters it was*), but fails to scale the distance into miles.	The student gives some written explanation of the solution process. The student explains what was done (*I took a rouler and mesred how many centemeters… insted of centemeters I labold it miles*), but does not explain why the steps were taken.