

Mathematics Assessment Quick Guide



Measurements of Student Progress Grade 7

2008 Mathematics Released Items

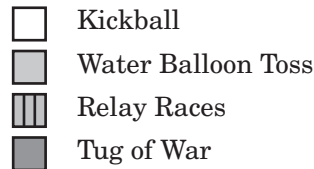
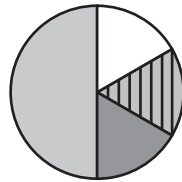
- 3 Vladimir surveyed his class about their favorite activities to do on field day. He wants to make a circle graph that reports the class survey results.

Field Day Survey

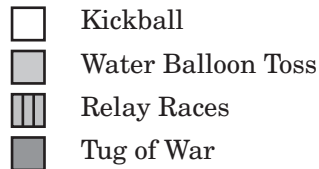
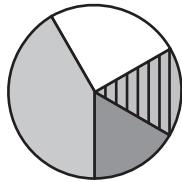
Activity	Student Votes
Kickball	I
Water Balloon Toss	
Relay Races	
Tug of War	

Which circle graph matches the survey results?

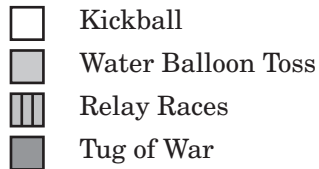
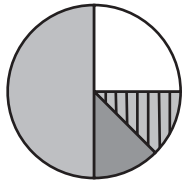
- A. Field Day Survey



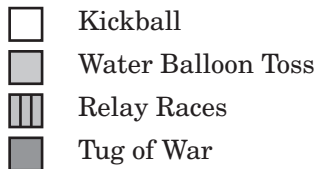
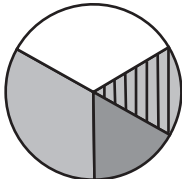
- B. Field Day Survey



- C. Field Day Survey



- D. Field Day Survey



Mathematics

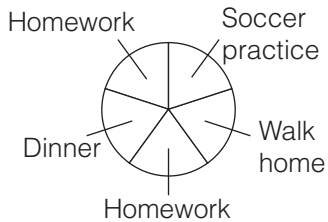
22 The chart shows Ana's after-school activities.

Ana's After-School Activities

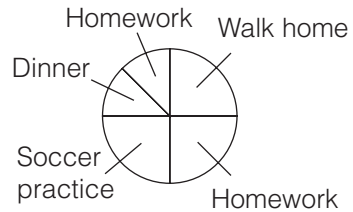
Time	Activity
3:00-4:00 P.M.	Soccer practice
4:00-4:30 P.M.	Walk home
4:30-5:45 P.M.	Homework
5:45-6:15 P.M.	Dinner
6:15-7:00 P.M.	Homework

Which circle graph shows how Ana spent her time?

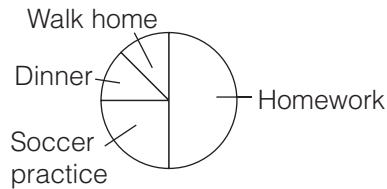
A. Ana's After-School Activities



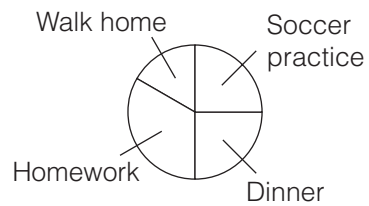
C. Ana's After-School Activities



B. Ana's After-School Activities



D. Ana's After-School Activities



Key: B

Mathematics

- 36** Knights Chess Club members are buying 8 shirts that are the same. Club members have a total of \$150 and want to spend **as much of it as possible**. They have to decide which style of shirt to buy and whether to have the club name, a picture of a knight, or both printed on each shirt.

T-shirt Store Price List

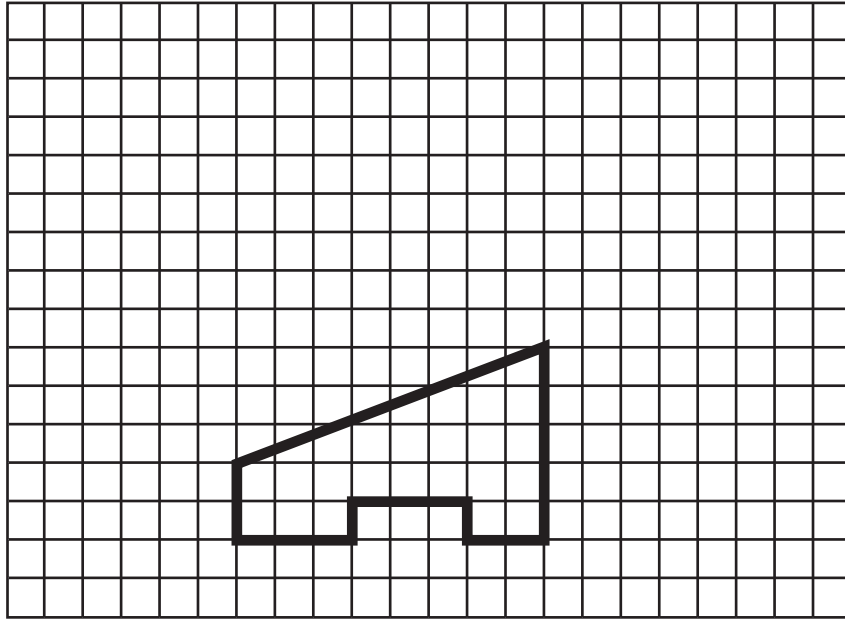
Items	Price
Short sleeve T-shirts	\$12 each
Long sleeve T-shirts	\$15 each
Club name printed on shirt	\$3 each shirt
Knight printed on shirt	\$2 each shirt

- Write all the possible combinations of shirt types with different printing options.
- Determine the cost for each combination.

Show your work using words, numbers, and/or pictures.

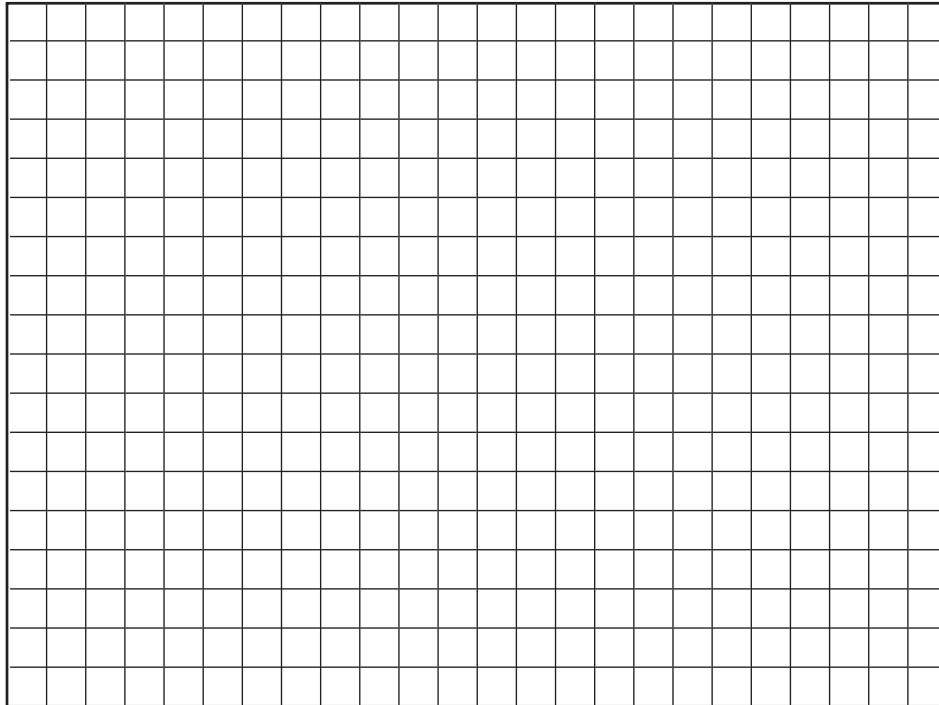
2007 Mathematics Released Items

- 4 Josh is helping his little brother make a game. He found the following scale drawing of a figure for a game piece.



In order to make the actual game piece, he must draw a **similar** figure with sides that are twice as long as the figure above.

On the grid below, draw the actual game piece. You must use a ruler or straightedge.



2007 Mathematics Released Items

- 5 Mr. McClary just finished scoring tests for his twelve students. The box shows the scores for his twelve students.

Mr. McClary's Class Test Scores
85, 62, 98, 100, 82, 77, 78, 97, 82, 76, 86, 65

Clearly represent the data from the table in a stem-and-leaf plot.

Be sure to include:

- An informative title that tells who and what the plot is about
- An accurate display of data
- A key that explains how to read the stem and leaves.



2008 Mathematics Released Items

- 1 The athletic department's storage box is 2 feet wide, 8 feet long, and 3 feet high. Packaged volleyballs come in boxes 1 foot long, 1 foot wide, and 1 foot high.

What is the greatest number of packaged volleyballs that can be stored in the storage box?

- A. 13
- B. 16
- C. 24
- D. 48

Item Information

Score Points: 1

Tools: N

Strand and Target ME03 (Procedures): Use formulas, including the Pythagorean Theorem, to determine missing measurements of circles, triangles, rectangular prisms, and cylinders; use systematic procedures to measure, describe, and compare angle measurements – identify angle measurement as the attribute to be measured, select and use an appropriate unit for angle measurement, select and use a tool that matches the unit chosen, compare attribute to units on tool to determine the number of units. (1.2.5)

Performance Data

(Use this space to fill in student performance information for your school and district.)

Percent Distribution			
School	District	State	Responses (* = correct response)
		13.3%	A
		12.6%	B
		10.6%	C
		62.9%	D*
		0.6%	NR

Mathematics

- 8 The Associated Student Body (ASB) at Baker Middle School conducted a survey to determine which assemblies the school should schedule for next year. The tables show the options and costs of options for March and April.

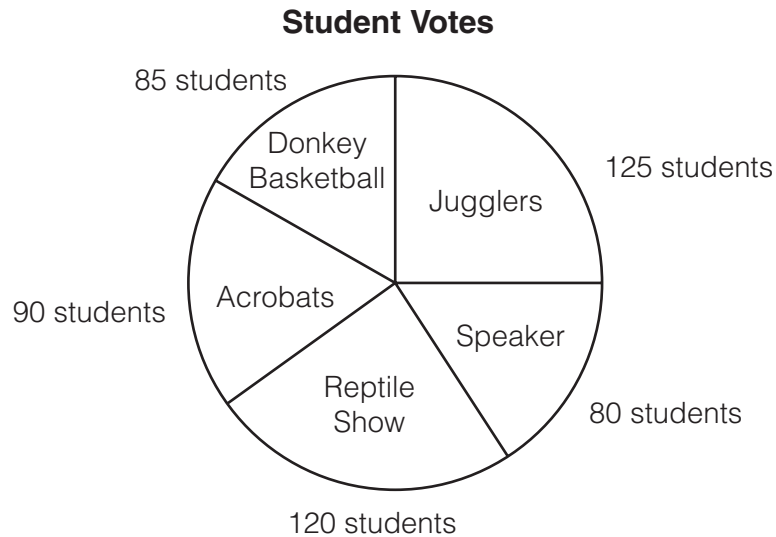
Assembly Options for March and April

March Assembly	April Assembly
Jugglers	Speaker
Reptile Show	Acrobats
Donkey Basketball	

Cost for Each Assembly Option

Guest Assembly	Cost
Jugglers	\$1,000.00
Reptile Show	\$800.00
Acrobats	\$700.00
Donkey Basketball	\$500.00
Speaker	\$200.00

Each of the 500 students voted for one of the five choices. The circle graph shows the results of their votes.



The ASB must select **one** assembly for each month. They want to spend **as much** of their \$1,500 budget as possible without going over \$1,500.

Mathematics

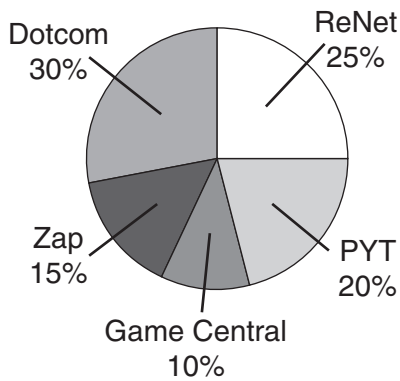
Organize all of the information given in order to determine which assemblies the school should schedule for March and April. Make a proposal to the ASB and include the following:

- All possible combinations of assemblies for March and April
- The cost of each combination
- A recommendation for the March and April assemblies
- A reason why your recommendation is appropriate using information from each table or chart.

Show your work using words, numbers, and/or pictures.

- 10** Juan is writing an article for the school newspaper about students playing computer games online. He found a pie chart that shows a national percentage for computer game services. He also has the results from a student activities survey.

Percentage of Computer Game Players Who Use Each Online Service Provider



Wharton Junior High School Student Activity Survey

Activity	Boys	Girls
Hiking	126	98
Swimming	105	123
Online Computer Games	89	71
Reading	97	115
Fishing	111	114

Use information from the pie chart and the table to predict how many Wharton Junior High School students use each online service.

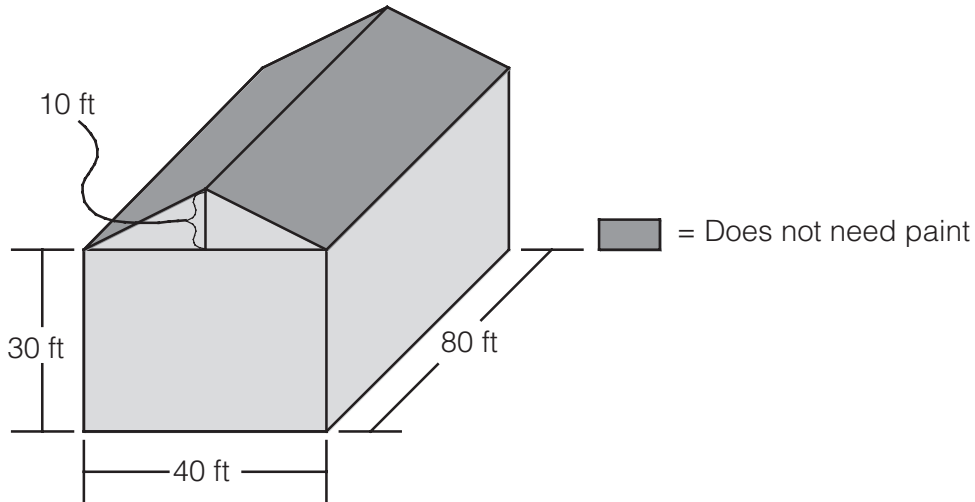
Show your work using words, numbers, and/or pictures.

<p>About how many Wharton Junior High School students use each online service provider?</p> <p>ReNet _____ Zap _____</p> <p>PYT _____ Dotcom _____</p> <p>Game Central _____</p>

Mathematics

- 15** Werner goes back to school in 4 weeks. He has been offered a job to paint the outside of a barn. He is not sure if he has enough time to complete the job but he still owes his parents money and would like to take the job.

The picture shows the dimensions of the barn.



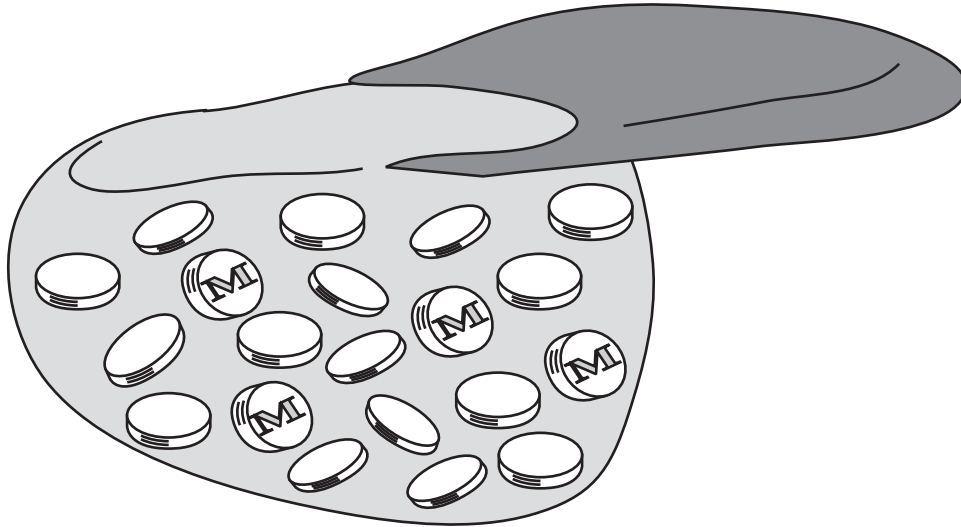
Werner has to decide whether he has enough time to do the job. He has the following information.

	He has a budget of \$400 for paint
	The paint will cost \$25 per gallon
<input type="radio"/>	Each gallon of paint covers about 500 square feet
	He can only work five days per week
	He figures it will take about 10 days to scrape off the old loose paint
	He figures that he can paint 1500 square feet per day
	He wants to finish before school starts.

Use the data to help Werner decide whether he should take the job. Support your recommendation with data from the problem situation including:

- Surface area he must scrape and paint
- Total amount of paint he needs
- Total cost of the paint
- Total amount of time the job will take
- Comparisons of your computations with the time and cost limits he has.

- 28** Ren will use activity tokens to decide what he will do each day in June.



Token Rules

There are 30 days in June.
There are 20 tokens in the hat.
There are 4 tokens for movie rentals.
Ren pulls 1 token each day.
Tokens are returned to the hat after each pull.

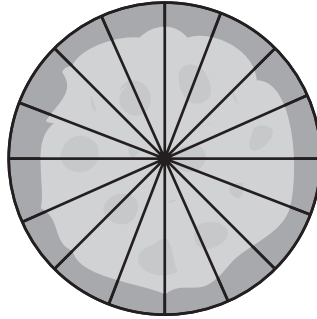
Predict **how many** times Ren can expect to rent a movie in June.

- A.** 20 times
- B.** 10 times
- C.** 6 times
- D.** 3 times

Key: C

Mathematics

- 35** Hyun-Ki, Dominik, and Sarila are studying late at night. They decide to order pizza from Papa Pete's pizzeria. The pizzas at Papa Pete's are always cut into 16 equal slices.



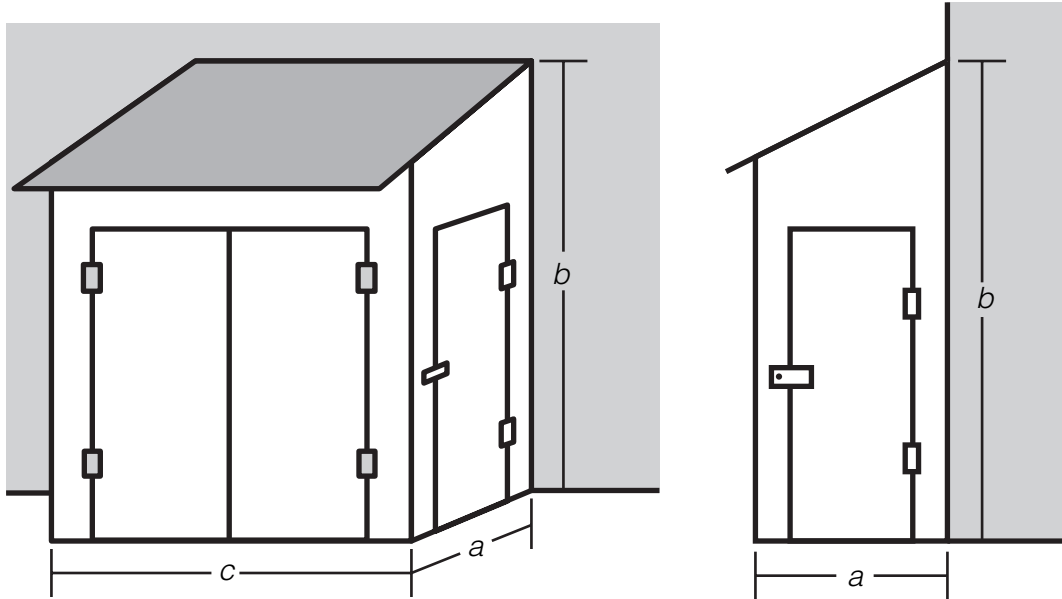
Hyun-Ki says that he will eat 6 of the slices. Hyun-Ki, Dominik, and Sarila have agreed to split the cost based on the amount of pizza they eat. The total cost of the pizza is \$14.

How much does Hyun-Ki have to pay for his share of the pizza?

- A.** \$2.33
- B.** \$4.20
- C.** \$5.25
- D.** \$8.40

Key: C

- 38 Gavin is building a storage shed attached to the side of his house. He needs to calculate the total surface area of the **three** walls of the shed to help determine how much paint he needs to purchase.



Which expression will provide a good **estimate** of the total surface area of all **three** shed walls?

- A. $(c \times b) + 2(a \times b)$
- B. $2(c \times b) + (a \times b)$
- C. $2a \times 2b + c$
- D. $a \times b \times c$

Key: A

42 There are 600 students at Rockford Middle School.

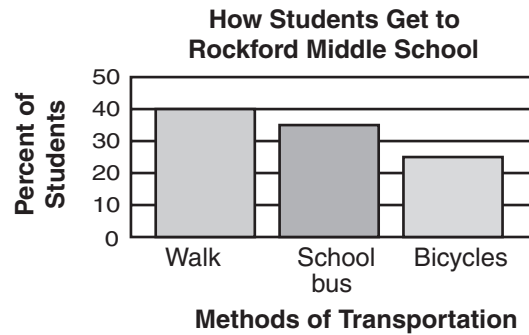
25% walk to school

35% ride bicycles

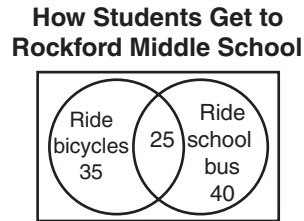
40% ride the school bus

Which graph **best** represents student transportation?

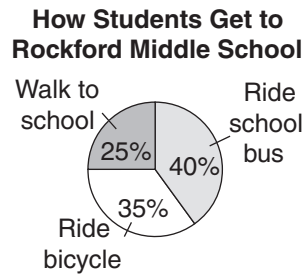
A.



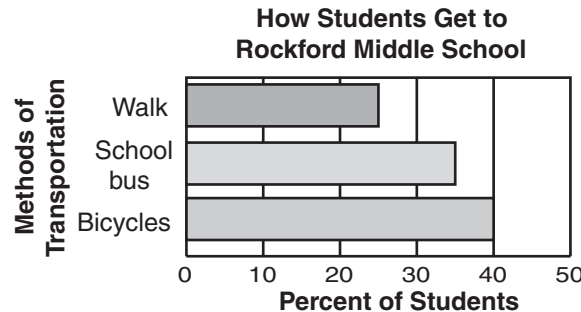
B.



C.



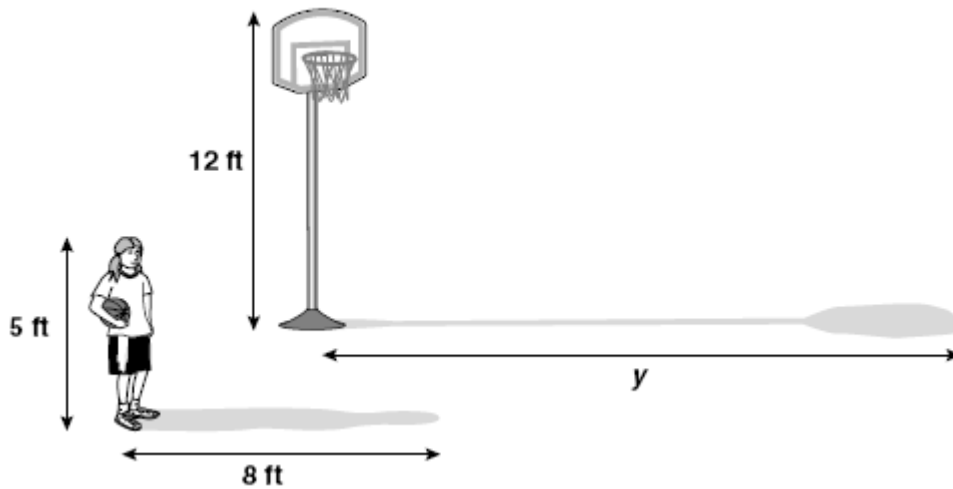
D.



Key: C

Reminder: Use a No. 2 pencil only. Do not use a mechanical pencil or pen.

- 2** A 5-foot-tall person casts an 8-foot shadow. A vertical pole that supports a basketball hoop is 12 feet high.

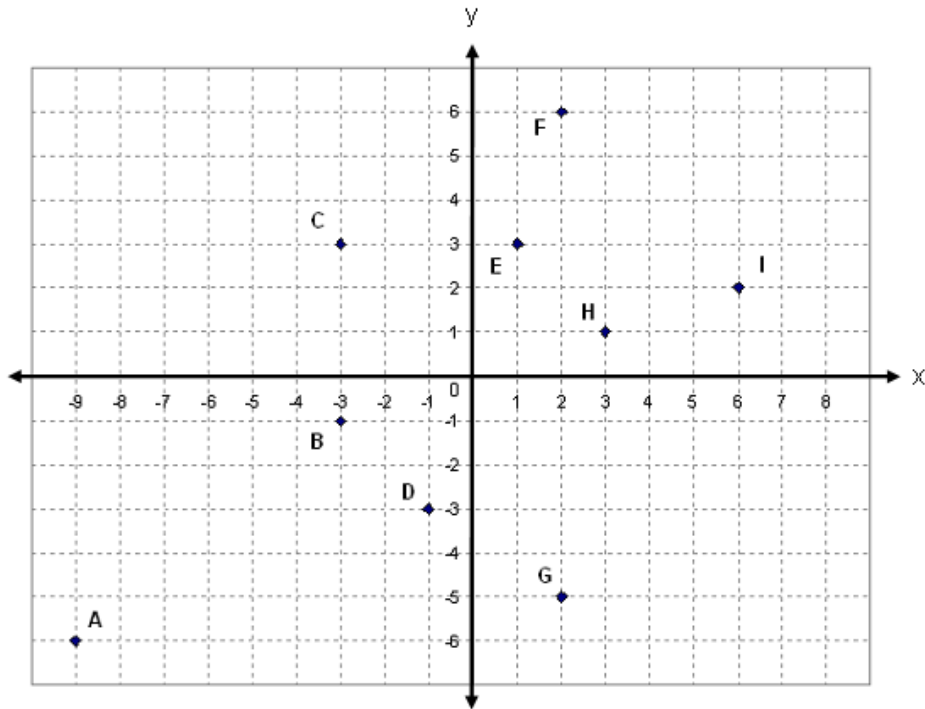


How long is the shadow of the pole?

- A. 7.5 feet
- B. 15 feet
- C. 19.2 feet
- D. 25 feet

Key: C

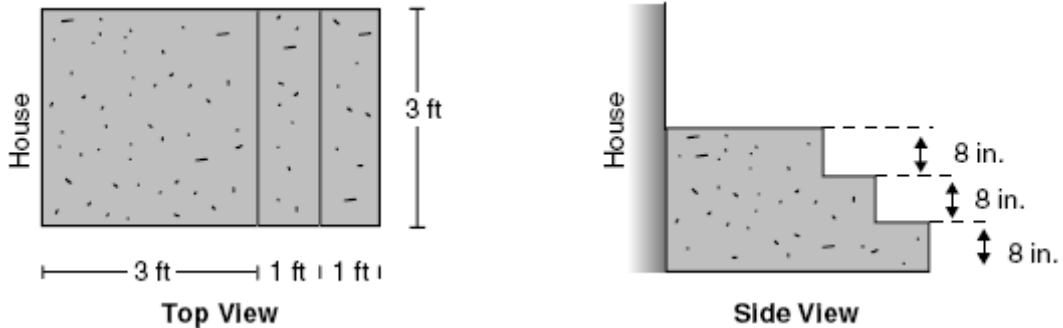
- 7 On Enrique's grid find all the points whose x coordinate is one third of its y coordinate.



- A. Points D, E, and F
- B. Points D, E, F, and G
- C. Points B, H, and I
- D. Points B, H, I, and G

Key: A

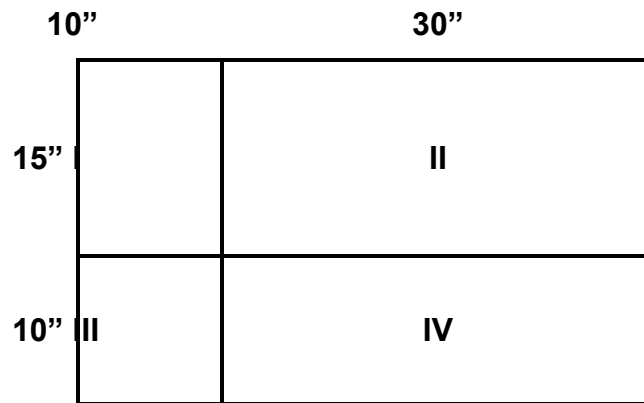
- 13 Homeowners want to replace some old wooden steps with concrete steps. They make the following drawings and bring them to your construction company. They want an estimate of the total cost.



You explain that a wooden form is built for each step, and concrete is then poured into the form. Concrete is delivered in cubic yards. The bottom step is completed first, then the middle, and then the top. You show them the drawing and the price list below.

<p>A 3D perspective drawing of a concrete step being formed by wooden forms. The drawing shows the top surface of the step, which is labeled 'Step area'. The wooden form is labeled 'Wooden form' and is shown as a structure that supports the concrete. The drawing is a perspective view, showing the depth of the step and the height of the wooden form.</p>	<p>Delivered ready-mixed concrete \$40/cu yd</p> <p>8 in. wide wooden forms with 1 in. thick boards. \$1.50/ft</p> <p>Surfacing the concrete. \$0.50/sq ft (putting smooth surface on step areas)</p>
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- 14 The school carnival has a dart game. A dart randomly hit the board.



What is the probability that it landed in region II?

- A. $\frac{9}{20}$
- B. $\frac{6}{13}$
- C. $\frac{1}{4}$
- D. $\frac{1}{3}$

Key: A

16 Grand Coulee Dam is made of about 10,585,000 cubic yards of concrete.

Which of the following would give the total amount of concrete in cubic feet?

- A. $10,585,000 \times 27$
- B. $10,585,000 \div 27$
- C. $10,585,000 \times 9$
- D. $10,585,000 \div 9$

Key: A

- 21** Alice, Bob, Farhana, and Jamal went out for pizza. When the bill came, they decided to split the check. Alice figured out what she owed by multiplying the bill by 0.25. Bob figured his share by finding 30% of the total. Farhana figured out her amount by dividing the total by 3. To determine what he owed, Jamal found 12% of the total.

Who paid the most money?

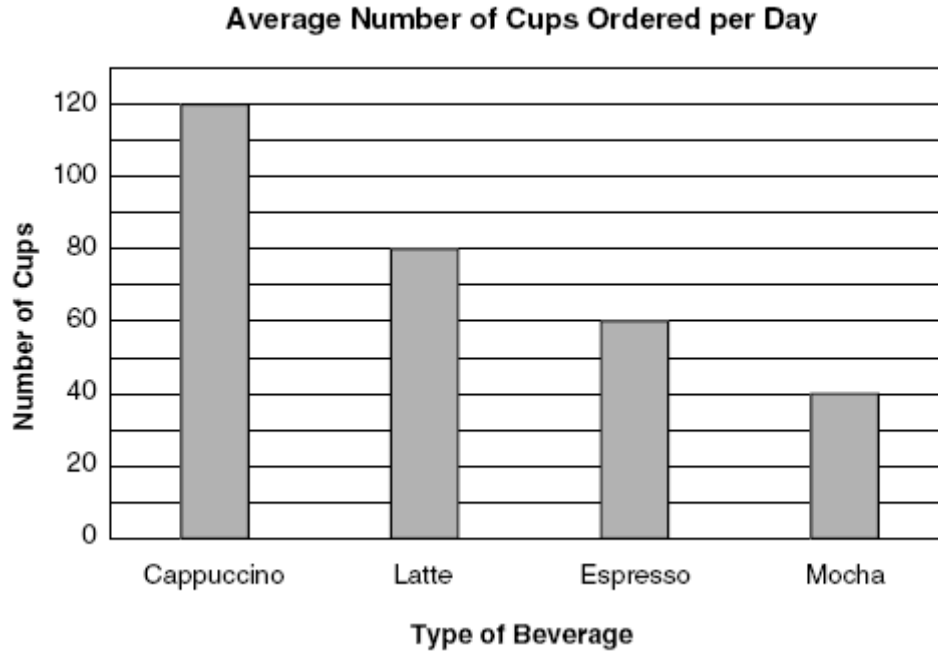
- A.** Alice
- B.** Bob
- C.** Farhana
- D.** Jamal

Key: C

- 36** When the height of a cylindrical storage tank is 11 m and the radius is 10 m, what would be its volume?
- A.** 314 m^3
 - B.** 691 m^3
 - C.** $1,100 \text{ m}^3$
 - D.** $3,454 \text{ m}^3$

Key: D

38 Suki needs to translate the following bar graph into a circle graph.



What should be the measure of the angle of the section for espresso?

- A. 20 degrees
- B. 60 degrees
- C. 72 degrees
- D. 90 degrees

Key: C

2007 Mathematics Sample Items

- 4 To qualify for the state cross-country championships, Nora needs to run 4 miles in 30 minutes or less.

Which is the slowest average rate, in minutes per mile, Nora could run to qualify for the state cross-country championships?

- A. 7.2
- B. 7.4
- C. 7.5
- D. 7.8

Item Information

Score Points: 1

Key: C

Tools: X

Strand and Target ME02 (Units and Systems): Demonstrate understanding of rate and other derived units of measurement; demonstrate understanding of how to convert within the US or metric system to achieve an appropriate level of precision; explain why different situations require different levels of precision (1.2.2, 1.2.3)

2008 Mathematics Sample Items

8 An electrician told Mrs. Aba that the labor required to repair the electrical problem cost \$150. The bill included a base service call charge of \$40 plus \$25 per hour.

- Without solving, write an equation that could be solved to determine the number of hours the electrician worked.
- Indicate what the variable represents.



02706

Item Information

Score Points: 2

Tools: X

Strand and Target AS02 (Symbols and Notations): Represent relationships between quantities using squares, cubes, and square roots; use variables to write expressions, linear equations, and inequalities that represent situations involving rational numbers, whole number powers, and square and cube roots (1.5.3, 1.5.4)