1

Seven students bought pencils to share equally.

How many pencils did they buy?

27	38	56	64
A	**B**	**C**	**D**

2

The ratio of the number of girls to boys in a class is 3 to 2.

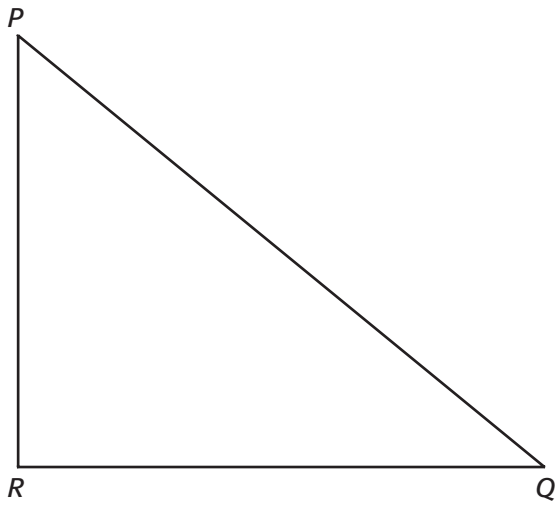
There are 18 girls.

How many boys are in the class?

23	12	3	2
A	**B**	**C**	**D**

3

Use your inch ruler to help you answer this question.



Which is the perimeter of triangle *PQR*?

A 7 inches

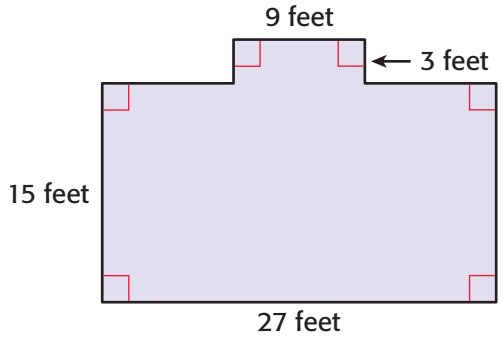
B $7\frac{1}{2}$ inches

C 8 inches

D $8\frac{1}{2}$ inches

GO ON ▶

4

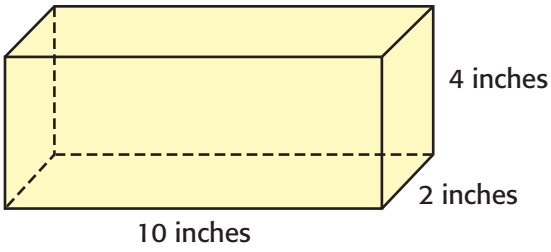


What is the area of the polygon?

A 90 square feet
B 144 square feet
C 405 square feet
D 432 square feet

5

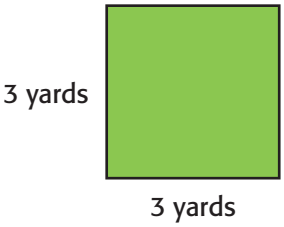
What is the surface area of this rectangular prism?



A 136 square inches
B 120 square inches
C 80 square inches
D 16 square inches

6

The area of the square below is 9 square yards.



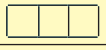
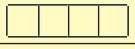
What is the area of the square in square feet?

A 12 square feet
B 27 square feet
C 54 square feet
D 81 square feet

GO ON▶

7

The table shows the pattern between the number of squares made and the number of toothpicks used.

Number of Squares	Number of Toothpicks	Picture
1	4	
2	7	
3	10	
4	13	
n	?	

Which can be used to find the number of toothpicks needed for n squares?

A $4n$ **B** $4n - 1$ **C** $3n + 1$ **D** $3n - 1$

8

Which is equal to
$3x + 5 + x + 10 + 2y$?

A $6x + 15$
B $3x + 2y + 15$
C $4x + 2y + 15$
D $9x + 12y$

GO ON▶

9

Which inequality represents the graph?

A $x \leq 2$
B $x > 2$
C $x < 2$
D $x \geq 2$

10

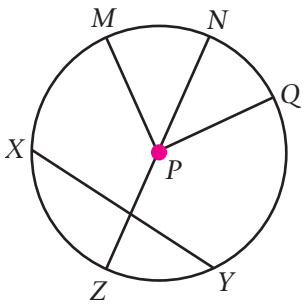
What values of x make the inequality true?

$$3x - 4 > 38$$

A $x > 14$
B $x < 14$
C $x > 11$
D $x < 11$

11

Points M, N, Q, Y, Z, and X are all on circle P.

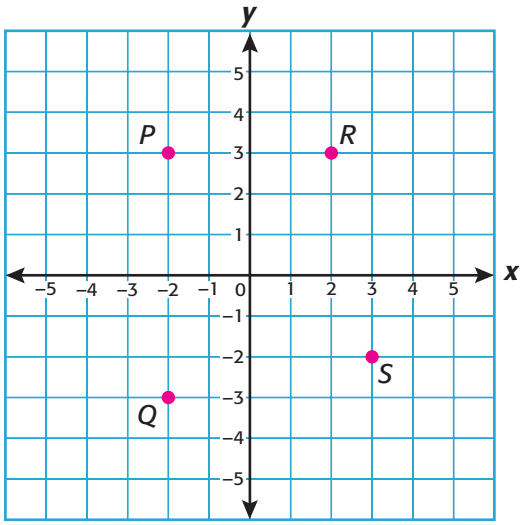


Which represents the diameter of circle P?

A $\overline{PM}$
B $\overline{ZN}$
C $\overline{XY}$
D $\overline{PQ}$

GO ON

12

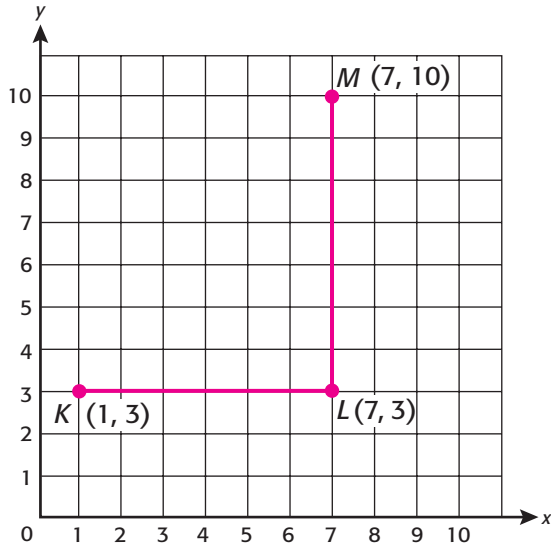


Which point is at (3, -2)?

A *P*
B *Q*
C *R*
D *S*

13

Points *K*, *L*, and *M* are vertices on rectangle *KLMN*.



What are the coordinates of vertex *N*?

A (7, 7)
B (1, 10)
C (10, 3)
D (10, 1)

GO ON

14

The dimensions of rectangle N are $\frac{1}{2}$ the dimensions of rectangle M.

Which must be true about the two rectangles?

A The area of rectangle N is $\frac{1}{2}$ the area of rectangle M.

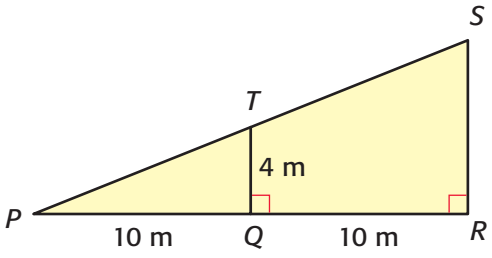
B The perimeter of rectangle N is equal to the perimeter of rectangle M.

C The area of rectangle N is equal to the area of rectangle M.

D The perimeter of rectangle N is $\frac{1}{2}$ the perimeter of rectangle M.

15

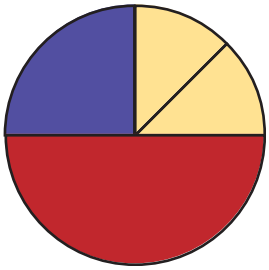
Triangle PQT is similar to triangle PRS.



What is the length of $\overline{SR}$?

8 m	10 m	14 m	20 m
A	**B**	**C**	**D**

16



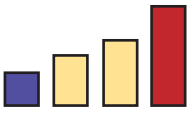
Which set of bars represents the data in the circle graph?

A

B

C

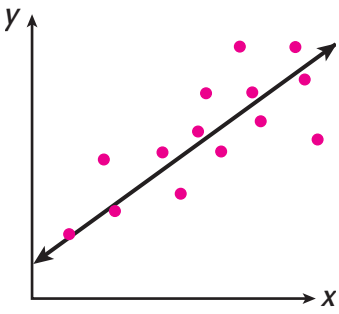
D



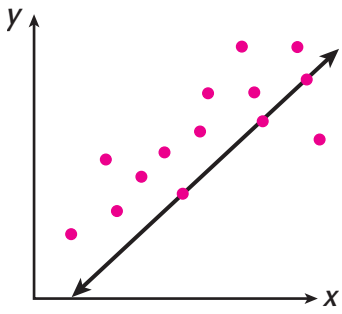
GO ON▶

17

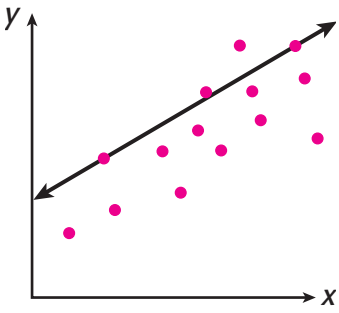
Which graph shows a line of best fit?



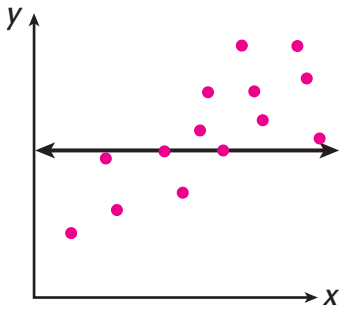
A



C



B



D

18

Jo needs an 85% average on her five math tests. She earned 99%, 85%, 79%, and 88% on her first four tests.

What score must she earn on her fifth test in order to have an average of exactly 85% for all five tests?

74%	79%	85%	88%
A	**B**	**C**	**D**

GO ON▶

19

Mike has 2 red apples and 3 green apples.

He takes an apple without looking, and gives it to his sister.

Then he takes an apple for himself.

What is the probability that Mike and his sister will each get a red apple?

A	B	C	D
10%	30%	40%	60%

20

A restaurant has 5 different hamburgers and 4 different drinks.

How many different combinations of one hamburger and one drink are possible?

A	B	C	D
2	5	9	20

STOP

Answer Key with Assessment Objectives Identified

Item Number	Correct Answer	Assessment Objective
1	C	**6.7.07** Solve problems involving descriptions of numbers, including characteristics and relationships (e.g., square numbers, prime/composite, prime factorization, greatest common factor, least common multiple).
2	B	**6.7.15** Use proportional reasoning to model and solve problems.
3	D	**7.7.02** Solve problems involving the perimeter and the area of polygons and composite figures using diagrams, models, and grids or by measuring or using given formulas (may include sketching a figure from its description).
4	D	**7.7.02** Solve problems involving the perimeter and the area of polygons and composite figures using diagrams, models, and grids or by measuring or using given formulas (may include sketching a figure from its description).
5	A	**7.7.04** Determine the volume and surface area of a right rectangular prism using an appropriate formula or strategy.
6	D	**7.7.05** Solve problems involving unit conversions within the same measurement system for length, weight/mass, capacity, and square units (e.g., 1 ft^2 = 144 in^2).
7	C	**8.7.01** Determine a missing term in a sequence, extend a sequence, and construct and identify a rule that can generate the terms of an arithmetic or geometric sequence.
8	C	**8.7.03** Simplify algebraic expressions by identifying and combining like terms.
9	A	**8.7.09** Identify, graph, and interpret inequalities on a number line.
10	A	**8.7.11** Solve linear equations in one variable (e.g., $2x + 3 = 13$) and inequalities involving < or > (e.g., $2x < 6$, $x + 7 > 10$).
11	B	**9.7.04** Identify, describe, and determine the radius and diameter of a circle.
12	D	**9.7.05** Graph points and identify coordinates of points on the Cartesian coordinate plane (all four quadrants).
13	B	**9.7.06** Represent and identify geometric figures using coordinate geometry.
14	D	**9.7.12** Recognize which attributes (such as shape, perimeter, and area) change or don't change when plane figures are composed, decomposed, or rearranged.
15	A	**9.7.14** Determine if figures are similar, and identify relationships between corresponding parts of similar figures.
16	A	**10.7.02** Compare different representations of the same data.
17	A	**10.7.04** Identify a reasonable approximation of the line of best fit from a set of data or a scatterplot.

Item Number	Correct Answer	Assessment Objective
18	A	**10.7.05** Determine and use the mode, range, median, and mean to interpret data.
19	A	**10.7.06** Solve problems involving the probability of a simple or compound event, including representing the probability as a fraction, decimal, or percent.
20	D	**10.7.08** Solve simple problems involving the number of ways objects can be arranged (permutations and combinations).

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.

Short-Response Items *Reactivos de Respuesta Corta*

Plain English - Use pages 17 - 19

English and Spanish - Use pages 20 - 22
Inglés y Español - Usa las páginas 20 - 22

21

A submarine is 294 feet below sea level.
A helicopter is directly over the submarine.
The helicopter is 1,277 feet above sea level.

How far is it in feet from the helicopter to the submarine?

Show your work.

DO NOT WRITE HERE.
USE PAGE __ IN YOUR ANSWER DOCUMENT TO ANSWER QUESTION 21.

GO ON▶

22

On March 1, Jess has 1,000 minutes to use with her cell phone.
She uses 39 minutes per day.

On what date will Jess run out of minutes?

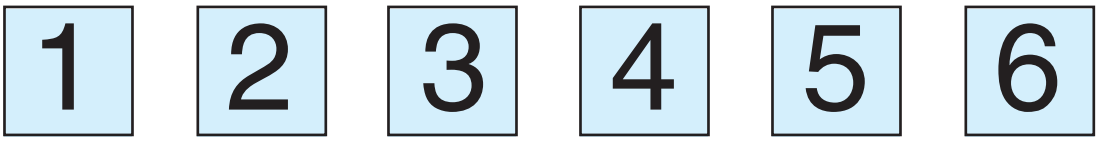
Show your work.

DO NOT WRITE HERE.
USE PAGE __ IN YOUR ANSWER DOCUMENT TO ANSWER QUESTION 22.

GO ON ▶

23

Sam rolls a standard 6-sided number cube and flips a penny.
The six sides of the number cube are shown.
Both sides of the penny are also shown.



How many different outcomes are possible if Sam rolls the number cube and flips the penny?

Show your work.

DO NOT WRITE HERE.
USE PAGE __ IN YOUR ANSWER DOCUMENT TO ANSWER QUESTION 23.

STOP

22

On March 1, Jess had 1,000 monthly minutes to use with her cellular phone plan. She uses 39 minutes per day during March.

On what date will she run out of minutes?

Show your work.

22

El 1 de marzo, Jess tenía para usar 1,000 minutos mensuales en su celular. Durante ese mes, ella usó 39 minutos diarios.

¿En qué día se quedó sin minutos?

Demuestra tu trabajo.

NO ESCRIBAS AQUÍ.
USA LA PÁGINA __ EN TU DOCUMENTO DE RESPUESTAS PARA CONTESTAR LA PREGUNTA 22.

Extended-Response Items *Reactivos de Respuesta Larga*

Plain English - Use pages 35 - 36

English and Spanish - Use pages 37 - 39
Inglés y Español - Usa las páginas 37 - 39

24

Ben made $180 by selling 50 basketball tickets.
Each adult ticket cost $5.
Each student ticket cost $3.
He sold some adult tickets and some student tickets.

1. How many adult tickets did he sell?

2. How many student tickets did he sell?

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

DO NOT WRITE HERE.
USE PAGE __ IN YOUR ANSWER DOCUMENT TO ANSWER QUESTION 24.

GO ON▶

25

The seventh-grade class is planning a pancake breakfast to raise money for a class trip. Use the information below to answer the questions.

- Bags of pancake mix cost $10.00 each.
- Each bag makes 120 pancakes.
- Each person will be served 3 pancakes.

1. How many pancakes will the students need to make to serve 240 people?
2. What will be the total cost of the pancake mix needed to serve these 240 people?

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

DO NOT WRITE HERE.
USE PAGE __ IN YOUR ANSWER DOCUMENT TO ANSWER QUESTION 25.

STOP