



**NEW ENGLAND
COMMON ASSESSMENT PROGRAM**

**Released Items
2010**

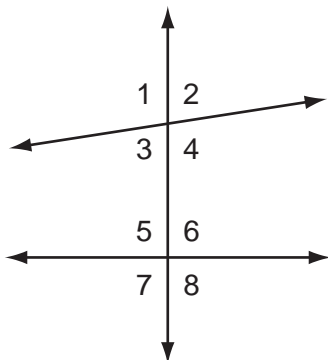
**Grade 8
Mathematics**

Mathematics



Items with this symbol were selected from Session One—no calculators or other mathematics tools allowed.

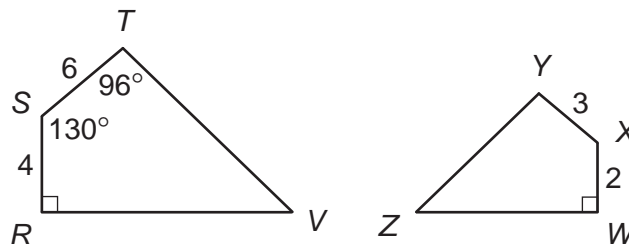
- 1 Look at the angles formed by the intersecting lines.



Which angles must be congruent?

- A. $\angle 2$ and $\angle 7$
 B. $\angle 4$ and $\angle 6$
 C. $\angle 5$ and $\angle 8$
 D. $\angle 3$ and $\angle 6$
- 2 In triangle FGH , the measure of $\angle G$ is 60° . The measure of $\angle F$ is twice the measure of $\angle H$. What is the measure of $\angle F$?
- A. 80°
 B. 90°
 C. 100°
 D. 120°

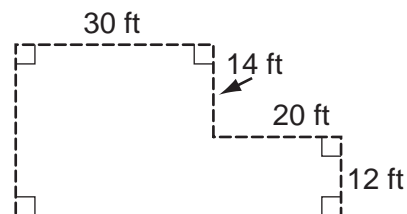
- 3 Quadrilateral $RSTV$ is similar to quadrilateral $WXYZ$ (quadrilateral $RSTV \sim$ quadrilateral $WXYZ$).



not drawn to scale

What is the degree measure of $\angle Y$?

- A. 96°
 B. 90°
 C. 65°
 D. 48°
- 4 Judi built the fence shown below.



The fence costs \$12 per foot. What was the total cost for the fence?

- A. \$ 152
 B. \$ 912
 C. \$1344
 D. \$1824

- 5 In addition to paying an employee a salary, a company deposits money in a savings plan for the employee.

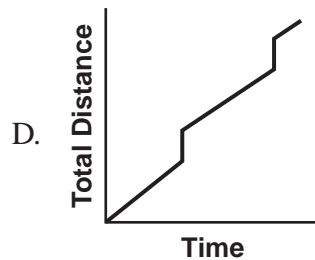
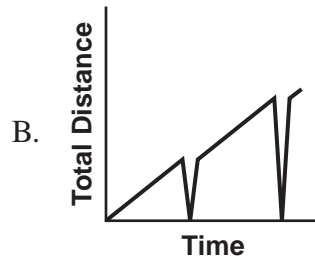
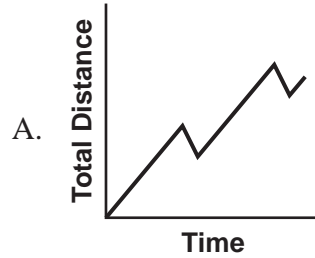
Salary	Deposit in Savings Plan
\$200.00	\$20.00
\$250.00	\$25.00
\$300.00	\$30.00
\$350.00	\$35.00

Which expression represents the amount of money deposited in the savings plan of an employee whose salary is x dollars?

- A. $\frac{1}{5}x$
- B. $\frac{1}{10}x$
- C. $x + 5$
- D. $x + 50$



- 6 During a bike ride, Zack rested for ten minutes each hour. Which graph could represent the total distance Zack traveled over time?





- 7 Look at this equation.

$$y = -4x - 6$$

What is the value of y when $x = -7$?

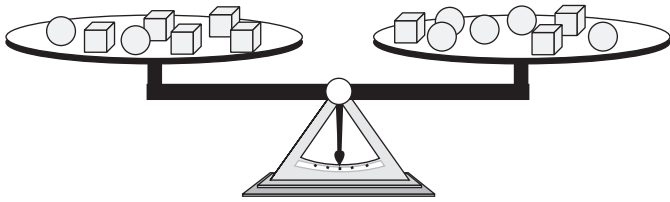
- A. -34
- B. -22
- C. 22
- D. 34

- 8 On her reading quiz, Sara earned 20 more than half the number of points she earned on her math quiz.

Which equation shows the relationship between r , the number of points Sara earned on her reading quiz, and m , the number of points she earned on her math quiz?

- A. $r = \frac{1}{2}m + 20$
- B. $m = \frac{1}{2}r + 20$
- C. $r = 20\left(m + \frac{1}{2}\right)$
- D. $m = 20\left(r + \frac{1}{2}\right)$

- 9 The scale below is balanced.



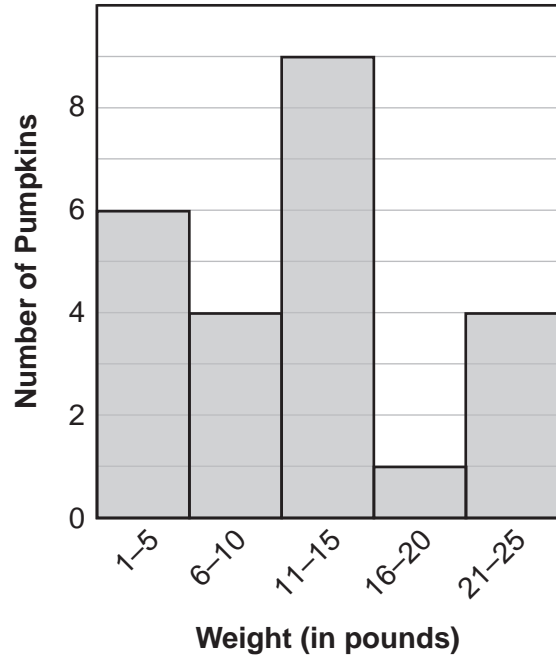
Which statement is true?

- A. ○○ weighs the same as □
- B. □□ weighs the same as ○
- C. ○○ weighs the same as □□□
- D. □□ weighs the same as ○○○



- 10 Each student in Colin's class picked a pumpkin. This histogram shows the distribution of weights, to the nearest pound, of the pumpkins the students picked.

Pumpkin Weights



Based on the information in this histogram, which statement **must** be true?

- A. One pumpkin weighs 16 pounds.
- B. The lightest pumpkin weighs 1 pound.
- C. Half of the pumpkins weigh less than 13 pounds.
- D. One-fourth of the pumpkins weigh less than 6 pounds.



11 The point $(3, -4)$ is translated 2 units to the right and 3 units up. What are the coordinates of the image of $(3, -4)$?

12 This table shows the relationship between time, in minutes, and the number of steps Joel took on a stair-climbing machine.

Time (in minutes)	Number of Steps
2	160
5	400
12	960
15	1200

Joel took steps at a constant rate. What is Joel's rate in steps per minute?

13 Look at this pattern.

126, 62, 30, 14, 6, . . .

- What is the next number in the pattern?
- Use words or symbols to describe the pattern.



- 14 Nicole is writing an article for the school newspaper about how students use computers. She plans to survey 100 randomly chosen students with this question.

What are all the ways you use a computer?

Nicole plans to display her data in a circle graph.

- a. Explain why a circle graph would **not** be a good choice for the data she will collect.

- b. Rewrite Nicole's question so that the results could be displayed in a circle graph.



- 15 Each day, Aidan skates laps around an ice rink. The length of each lap Aidan skates is $\frac{1}{8}$ mile.
- a. On Saturday, Aidan skated 12 laps. What is the distance, in miles, that Aidan skated?

 - b. On Sunday, Aidan skated $2\frac{1}{2}$ miles. How many laps did he skate on Sunday? Show your work or explain how you know.

 - c. On Monday and Tuesday, Aidan skated a total of 40 laps around the ice rink. On Tuesday, he skated $\frac{2}{5}$ of the total distance he skated on both days. How many miles did Aidan skate on Monday? Show your work or explain how you know.