



**NEW ENGLAND
COMMON ASSESSMENT PROGRAM**

**Released Items
2009**

**Grade 7
Mathematics**

Mathematics



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

- 1 The Math League team consists of 18 students. Of these students, 6 are seventh graders and the rest are eighth graders. Which statement describes the Math League team?
- A. There are 2 eighth graders for every seventh grader.
 - B. There are 3 eighth graders for every seventh grader.
 - C. There are 12 eighth graders for every seventh grader.
 - D. There are the same number of eighth graders and seventh graders.



- 2 Which value of n makes this sentence true?

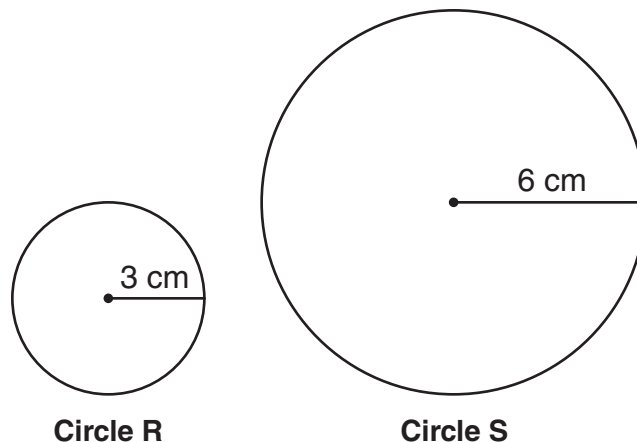
$$n^2 = n^3$$

- A. 1
- B. 2
- C. 3
- D. 4



- 3 Andrew spent \$16 on gasoline last week. He will spend 25% more on gasoline this week than he did last week. How much will Andrew spend on gasoline this week?
- A. \$64
 - B. \$41
 - C. \$24
 - D. \$20

- 4 Look at Circle R and Circle S.




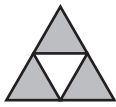
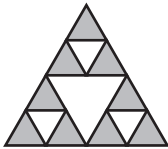
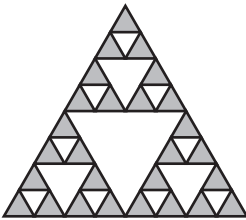
Circle R

Circle S

How does the circumference of Circle S compare to the circumference of Circle R?

- A. The circumference of Circle S is 2 times the circumference of Circle R.
 - B. The circumference of Circle S is 3 times the circumference of Circle R.
 - C. The circumference of Circle S is 4 times the circumference of Circle R.
 - D. The circumferences of Circles R and S are equal.
- 5 Drew is planting grass. The lawn is a rectangle that measures 120 feet by 75 feet. Drew uses 1 pound of grass seed for every 200 square feet of lawn. How much grass seed does Drew use?
- A. 45 pounds
 - B. 90 pounds
 - C. 195 pounds
 - D. 390 pounds

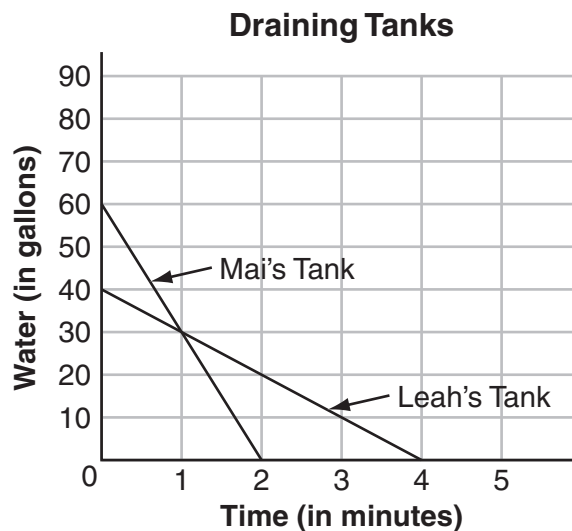
6 Look at this pattern of shapes.

Figure		Number of Shaded Triangles
1		1
2		3
3		9
4		27

The pattern continues. How many shaded triangles will be in Figure 5?

- A. 36
- B. 81
- C. 243
- D. 729

7 Look at this graph.



Mai and Leah drain two tanks of water. The graph shows the amount of water in each tank as it drains.

Which statement below is true?

- A. Mai's tank always has more water in it than Leah's tank.
- B. Leah's tank always has more water in it than Mai's tank.
- C. Mai's tank drains faster than Leah's tank.
- D. Leah's tank drains faster than Mai's tank.

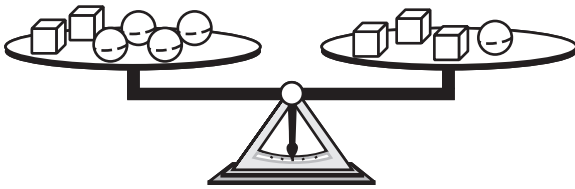


8 Which expression has the same value as $5 - 3x$, when $x = 4$?

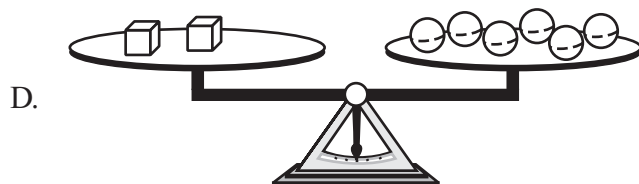
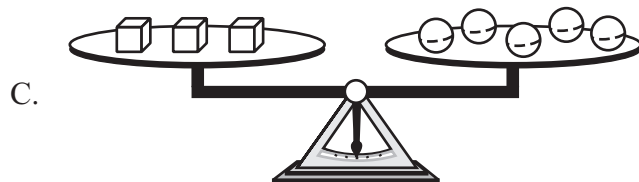
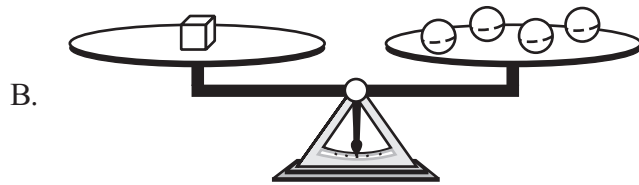
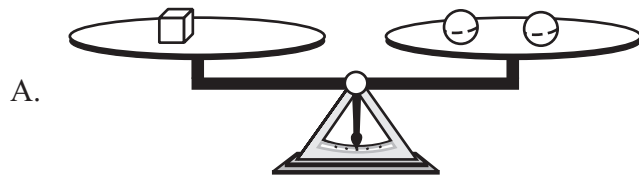
- A. $3x - 5$
- B. $2x - 15$
- C. $2x - 16$
- D. $x - 10$



9 The scale shown below is balanced.



One scale below is correctly balanced. Which scale is correctly balanced?



10 Michelle asked some students at a football game which team they were supporting. She displayed her results in this circle graph.



Michelle states that 90 students were supporting the home team. About how many students did she ask in all?

- A. 120
- B. 135
- C. 150
- D. 180



- 11 This list of numbers is in order from least to greatest.

$$\frac{1}{100} < \frac{1}{10} < a < 0.11 < 1.1$$

What is a possible value of a ?

- 12 Angela has 5 fish. When she feeds them, she collects data about which fish eats first. Look at her data.

Which Fish Eats First?

Fish	Number of Times
Goldie	9
Marlin	5
Nemo	2
Dory	3
Flounder	6

Based on Angela's data, what is the probability that Nemo will eat first the next time Angela feeds the fish?

- 13 This model shows the ratio of red paint to blue paint needed to make a shade of purple paint.



Key
R represents red paint
B represents blue paint

How many ounces of red paint are needed in order to make 30 ounces of purple paint? Show your work or explain how you know.

- 14 A construction company must pay a fine for completing a job late. The company uses the equation below to calculate the amount of the fine, f , in dollars, when the job is finished d days late.

$$f = 25,000 + 1,500d$$

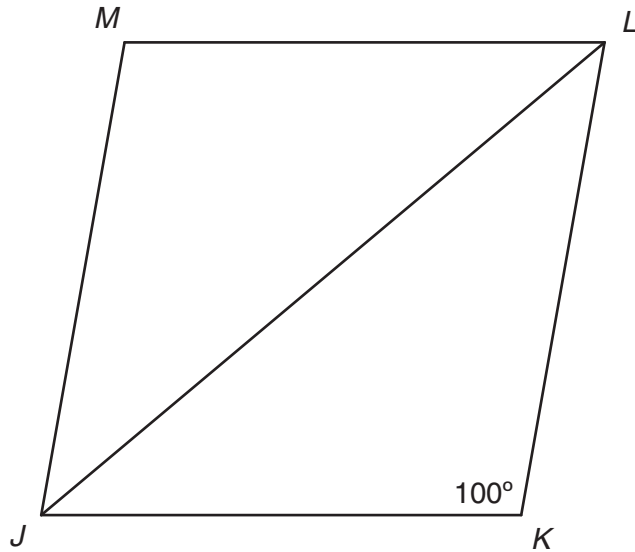
The company completes a construction job 6 days late.

How much is the fine? Show your work or explain how you know.

- 15 Look at List A and List B.

List A	List B
acute	equilateral
obtuse	isosceles
right	scalene

- a. $JKLM$ is a rhombus.



Describe triangle JKL using one word from List A and one word from List B. Explain why each word you use describes the triangle.

Rectangle $PQRS$ is not shown. Rectangle $PQRS$ is not a square.

- b. Describe triangle PSQ using one word from List A and one word from List B. Explain why each word you use describes the triangle.