PRACTICE TEST 2

1. Which of the following diagrams is the correct solution to the equation $4(x - 2) = 2(3x - 1)$?

   A. ▭ = □

   B. ▭ = ■

   C. ▭ = □ □ □

   D. ▭ = ■ ■ ■ ■

2. What is the value of x in the equation $2(x + 5) = 5$?

   A. -5

   B. $-\dfrac{5}{2}$

   C. $\dfrac{5}{2}$

   D. 5

Numerical Response

3. When the equation $\dfrac{16}{x} = 4$ is simplified, the value of x is ____4____.

Use the following information to answer the next question.

> $0, 2, -6, -10$

4. Which two of the given numbers belong to the solution set of $-3 < x + 2$?

   A. 0 and 2

   B. 2 and -6

   C. -6 and -10

   D. 0 and -10

Use the following information to answer the next question.

> The given number line represents the solution to an inequality.

number line with point at -4

5. Which of the following inequalities represents the solution to the given number line?

   A. $-5x + 6 \geq 26$

   B. $-5x + 6 \leq 26$

   C. $-5x + 6 \geq -26$

   D. $-5x + 6 \leq -26$

Use the following information to answer the next question.

> Enrico needs an 80% average over five subjects in order to qualify for a scholarship. His marks for the first four subjects are 79%, 86%, 83%, and 77%.

Numerical Response

6. What mark must Enrico get in the fifth subject to earn the scholarship? ___75___ %

7. What are the coefficients of the variable terms in the expression $5x - y - 1$?

   A. 1

   B. 0 and 1

   C. 3 and 1

   D. 5 and -1

8. The equation $x^2 - 4 = 21$ is represented by which of the following statements?

   A. A number minus four equals twenty-one.

   B. A number times two minus four equals twenty-one.

   C. A number times itself minus four equals twenty-one.

   D. A number multiplied by itself three times then divided by four equals twenty-one.
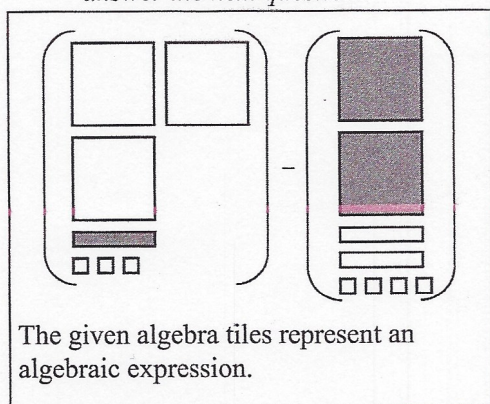
9. Which of the following expressions is the simplified form of
$(9s - 3r + t) - (s - r - t)$?

A. $8s - 2r$

B. $8s - 4r$

C. $8s - 2r + 2t$

D. $8s - 4r + 2t$

10. When $(3x^2 - 4xy + 2yz)$
$+(4xy + 5yz - 2x^2)$
$+(x^2 - 5xy - 3yz + x)$ is simplified, what is the resulting expression?

A. $x^2 - 13xy + 4yz$

B. $3x^2 - 5xy + 4yz$

C. $2x^2 - 5xy + 4yz + x$

D. $2x^2 - 13xy + 4yz + x$

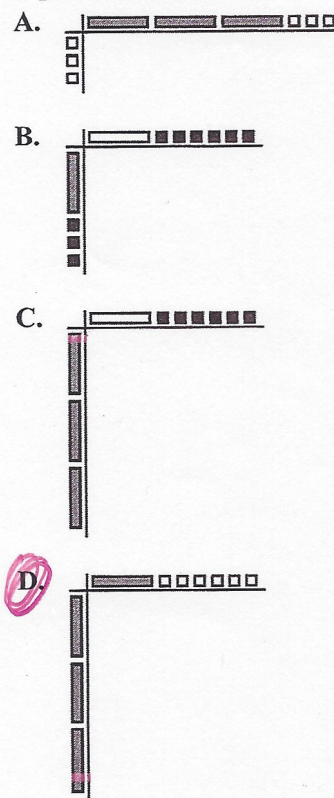*Use the following information to answer the next question.*

The given algebra tiles represent an algebraic expression.

11. A simplified form of the algebraic expression represented by the algebra tiles is

A. $-5x^2 + x + 3$

B. $-5x^2 + 3x + 1$

C. $-3x^2 + 2x + 5$

D. $-3x^2 + 5x + 2$

Use the following information to answer the next question.
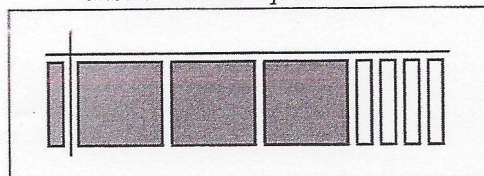
12. What is the other factor in this arrangement of algebra tiles?

13. Which of the following diagrams shows the correct setup of the grid for the expression $3x(x - 6)$?
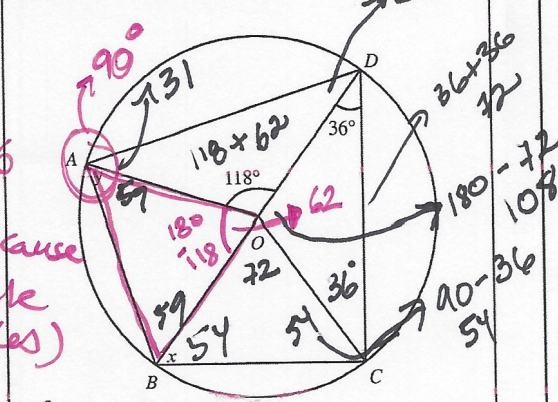
14. When the expression
$9n^4 + 36n^3 + 15n^2 + 21n$ is divided by
$3n$, what is the coefficient of the n^2-term in the quotient? _____

Use the following information to answer the next question.

*BD* is a diameter of the circle. Point *O* is the center of the circle.

Handwritten annotations: 90°, 31, 31, 118+62, 36°, 118°, 36+36=72, 180, 118, 62, 180-72=108, 72, 36, 90-36=54, x, 54, 54, 90-36 54

Handwritten: • y is one of 2 equal angles (because the triangle is isosceles)

Handwritten: Because BD is diameter, 31+y = 90

15. The sum of angles *x* and *y* is

  A. 46°   **B.** 67°

  C. 113°   **D.** 134°

(C is circled)

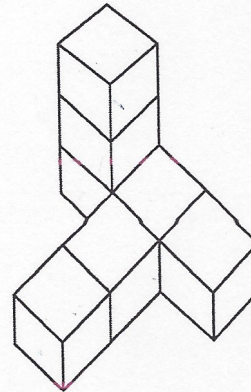*Use the following information to answer the next question.*

The scale model is used to represent a building for the redevelopment of the downtown business center. It is built with 6 cm cubes.
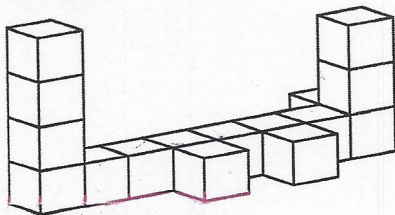
16. Excluding the bottom faces, what is the surface area of the model of the building?

  A. 1 512 cm^2 **B.** 1 980 cm^2

  C. 2 104 cm^2 **D.** 2 376 cm^2

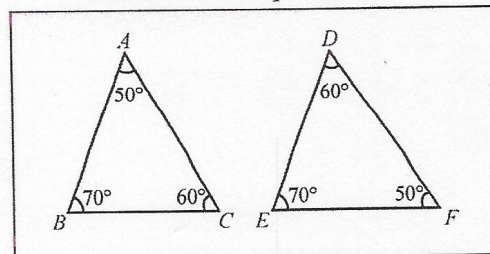*Use the following information to answer the next question.*

This composite object is built with 5 cm cubes.

Numerical Response

17. The surface area of the given object is _____ cm^2.

18. To guarantee that $\triangle ABC$ is similar to $\triangle DEF$, a student can verify that $\angle A = \angle D$ and that

  A. $\angle C = \angle F$

  B. AB is proportional to DE

  C. BC is proportional to EF

  D. $\angle B + \angle C = \angle E + \angle F$

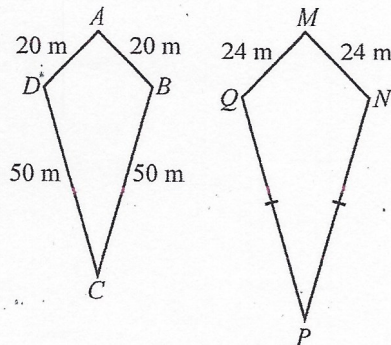*Use the following information to answer the next question.*

19. In the diagram shown, in order to illustrate the properties of similar triangles it is best to state that $\triangle ABC$ is similar to

  A. $\triangle DEF$ **B.** $\triangle DFE$

  C. $\triangle EDF$ **D.** $\triangle FED$

Use the following information to answer the next question.

In order to play a particular game with Grade 6 students, a teacher places four markers as shown in quadrilateral *ABCD*. To play the game with Grade 9 students, the teacher enlarges the field by placing the four markers as shown in quadrilateral *MNPQ*.

Numerical Response

20. Given that quadrilateral *ABCD* is similar to quadrilateral *MNPQ*, the distance from marker *Q* to marker *P* is _____ m.

Use the following information to answer the next question.

The following question was asked to the members of SPCPP (the Society of People who Consider Pluto to be a Planet): "What is your favourite planet in the solar system?"

21. The results to this question will **not** lead to representative results because the question
A. is addressed to a biased sample of people
B. deals with a private matter
C. is not culturally sensitive
D. is not worded properly

Use the following information to answer the next question.

A survey is being conducted to test people's reactions to a new smoothie store that is being put in the mall food court. People are offered a taste of a selection of smoothies. Then, they are asked to fill out a short questionnaire about the sample beverage and the location of the new store in the food court.

22. Which of the following groups of people would **most likely** represent the population targeted by the survey?
A. Employees of the other food vendors
B. People in the health food store
C. People in the food court
D. Shoppers on the street

Use the following information to answer the next question.

Pamela wants to survey people in her community to see if they think a skating rink should be included in the construction of a new family centre.

23. Which of the following sample populations would provide Pamela with the **most meaningful** data?
A. All parents living in the community
B. All children attending the community school
C. A representation of ringette and hockey players
D. A representation of children and adults living in the community

Cynthia has just been elected student
union president. The first issue on her list
of improvements for the school is to
replace unhealthy snack options in all
vending machines with healthy ones.
Before she follows through with this
change, she wants to ask students from
different grade levels which types of
healthy snacks they would like to have.
She formulates a question that she can ask
to get the information she needs.

24. Which of the following steps should
Cynthia implement as the next step in her
investigation?

   A. Select and identify a population or
   sample to be investigated.

   B. Select and identify a method of
   collecting data.

   C. Display and analyze the data.

   D. Collect and record the data.

Figure *ABCD* is dilated by a scale of $\frac{1}{4}$
with the centre of dilation at the origin to
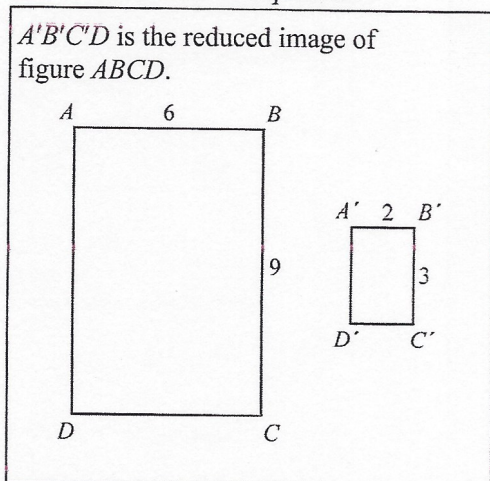form figure *A'B'C'D'*.
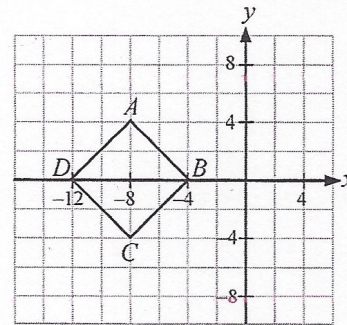
25. What are the coordinates of figure
A'B'C'D'?

   A. $A'(-4, 8)$, $B'(0, 4)$, $C'(-4, 0)$,
   $D'(-8, 0)$

   B. $A'(-2, 1)$, $B'(-1, 0)$, $C'(-2, -1)$,
   $D'(-3, 0)$

   C. $A'(-12, 0)$, $B'(-8, -4)$, $C'(-12, -8)$,
   $D'(-16, -4)$

   D. $A'(-32, 16)$, $B'(-16, 0)$,
   $C'(-32, -16)$, $D'(-24, 0)$

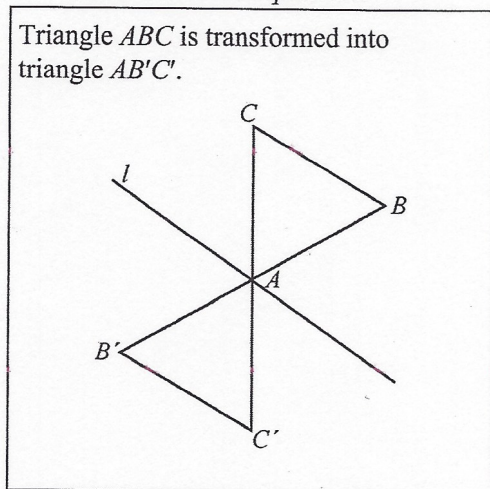*Use the following information to answer the next question.*

A'B'C'D is the reduced image of figure *ABCD*.

26. What is the scale factor of this reduction?

A. 4   B. 3

C. $\frac{1}{3}$ D. $\frac{1}{4}$

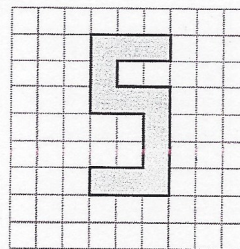*Use the following information to answer the next question.*

Triangle *ABC* is transformed into triangle *AB'C'*.

27. This transformation is an example of a

A. dilatation

B. translation
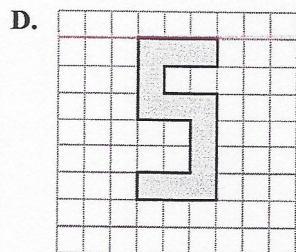
C. rotation about point *A*
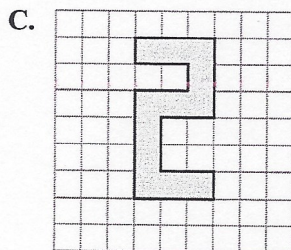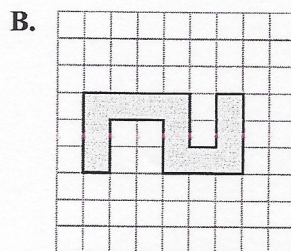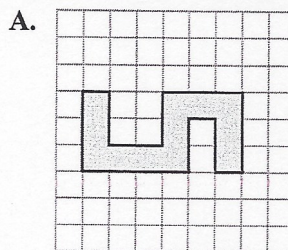
D. reflection across line *l*

Use the following information to answer the next question.

A figure in the shape of a 5 is shown on the given grid.

A figure on a grid

28. Which of the following diagrams shows the given figure rotated 90° clockwise?

A.

B.

C.

D.

29. The expression $3 \times 3 \times 3 \times 3$ can also be written as
    A. 13
    B. 43
    C. 34
    D. 312

30. What is one-eighth of 2^6?
    A. 8
    B. 12
    C. 24
    D. 25

31. What is the expression $4^2 \times 4^{10} \div 4^9$ as a single power?
    A. 4^{21}
    B. 4^{11}
    C. 4^3
    D. 4^1

32. The expression $\left(\dfrac{9}{5}\right)^2$ is equivalent to
    A. $\dfrac{9}{5}$
    B. $\dfrac{81}{5}$
    C. $\dfrac{18}{10}$
    D. $\dfrac{81}{25}$

Numerical Response

33. Rounded to the nearest hundredth, what is the value of the expression $\left(\dfrac{2}{5}\right)^2$? _____

Use the following information to answer the next question.

A local radio station has to give a skill-testing question to the winners of its on-air contests. The winners can only claim their prize by solving the given expression.

$$2\dfrac{3}{5} + 4.4 + (-5.2) + \left(-1\dfrac{3}{10}\right)$$

34. In order to claim the prize, a winning contestant must provide the fraction
    A. $-\dfrac{1}{10}$
    B. $-\dfrac{1}{2}$
    C. $\dfrac{1}{2}$
    D. $1\dfrac{1}{10}$

Use the following information to answer the next question.

Melissa uses $\dfrac{1}{16}$ of a tank of gas to travel to and from her brother's house. In July, she went to his house 7 times.

Numerical Response

35. If her gas tank holds 40 L, how many litres did Melissa use travelling to her brother's house in July? Round the solution to the nearest tenth of a litre.

Use the following information to answer the next question.

A hot air balloon is 33.5 m above the ground. From this point, it rises 2.8 m more and then falls 14.6 m.

Numerical Response

36. How far above the ground is the hot air balloon now? _____ m

Use the following information to answer the next question.

Ms. Morley has given the expression $8.1 - 2.4 \times 2.4 - (-3)^2 + 6^2 \div 3 \times 2.15$ to four students to calculate. This table shows their results.

Name	Solution
Gavin	37.14
Noah	30.66
Ross	32.46
Kaitlin	19.14

37. Which student calculated the expression correctly?
    A. Gavin
    B. Noah
    C. Ross
    D. Kaitlin

Use the following information to answer the next question.

Josh bought supper for himself and his friends. He ordered three cheeseburger combos at $5.49 each, seven ice cream sundaes at $1.29 each, and four chicken combos at $5.99 each.

38. Using the correct order of operations, the equation representing the total cost of Josh's order is

A. total = $(3 \times \$1.29) + (7 \times \$5.49) + (4 \times \$5.99)$

B. total = $(3 \times \$5.49) + (7 \times \$1.29) + (4 \times \$5.99)$

C. total = $(3 \times \$5.49) + (7 \times \$5.99) + (4 \times \$1.29)$

D. total = $(3 \times \$5.99) + (7 \times \$1.29) + (4 \times \$5.49)$

39. If x is a rational number and satisfies the equation $3x^2 = 147$, what is the value of the principal square root of x^2?

A. -49 **B.** -7

C. 7 **D.** 49

40. What is the smallest four-digit number that is a perfect square?

A. 1 004   **B.** 1 016

C. 1 024   **D.** 1 036

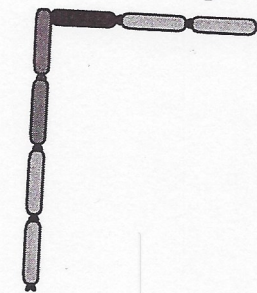**Numerical Response**

41. What rational number has a square root of 0.5? _____

42. Using estimation, what is the square root of 75?

A. 9   **B.** 8.7

C. 8   **D.** 7.9

43. Rounded to the nearest hundredth, what is the square root of 726?

A. 26.94   **B.** 28.98

C. 30.91   **D.** 36.92

Use the following information to answer the next question.

Toby made a pattern by forming shapes out of candies.
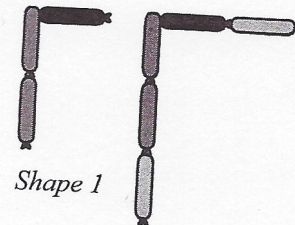
Shape 1

Shape 2

Shape 3

44. Which of the following expressions can be used to represent the given pattern?

A. $2n - 1$ **B.** $2n + 1$

C. $2n - 2$ **D.** $2n + 2$

45. The sum of two consecutive numbers is 17. If one of the numbers is x, which of the following equations can be used to solve for the two numbers?

A. $x + 1 = 17$

B. $x + 2 = 17$

C. $x + x + 1 = 17$

D. $x + x + 2 = 17$

Use the following information to answer the next question.

Danielle has 7 fewer than 6 times as many marbles as Katherine.

Numerical Response

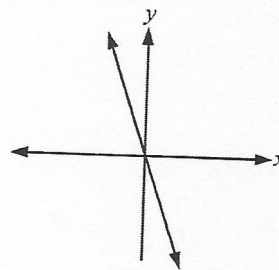**46.** If Danielle has 119 marbles, how many marbles does Katherine have? _____

Use the following information to answer the next question.

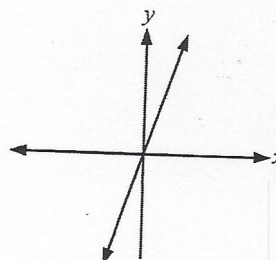The table of values for the linear relationship between x and $-3x$ is given

x	$-3x$
-2	6
-1	3
0	0
1	-3
2	-6

47. Which of the following graphs illustrates this information?
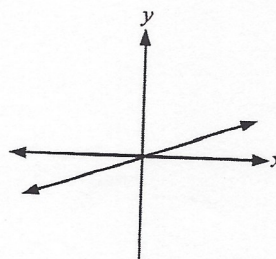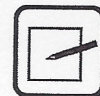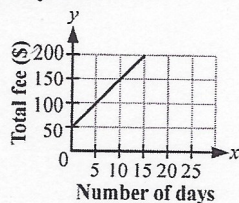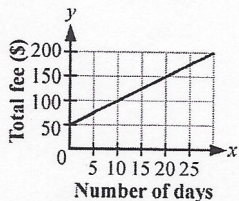
A.

B.

C.
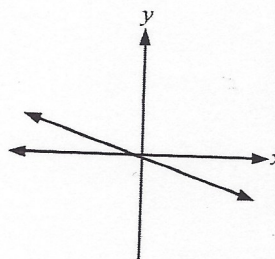
D.

48. The membership fee at a particular health club switched from $50 per month plus $5 per day of use to a flat fee of $10 per day of use. Which graph represents the new monthly fees?
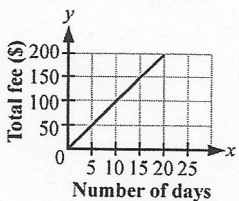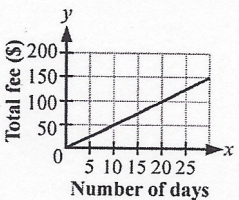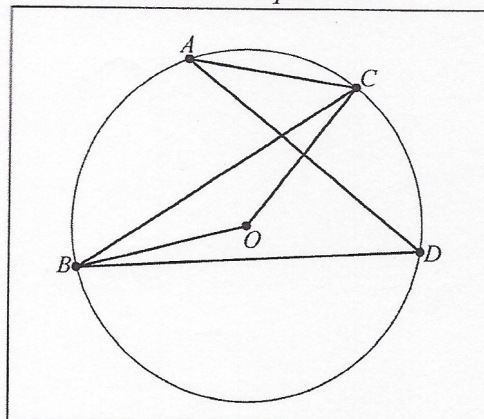
A.

B.

C.

D.

Use the following information to answer the next question.

A weather forecaster predicts a 10% chance of snowfall on October 31 and predicts snowfall is 3 times as likely the next day, November 1.

49. What is the probability that it will **not** snow on November 1?

A. 30%   B. 60%

C. 70%   D. 80%

Use the following information to answer the next question.

50. Which arc is subtended by the central angle in the given diagram?

A. *AB*   B. *AC*

C. *BC*   D. *BD*