MATHΣMATICS

GRADE 7

REVISION
End of Year
2018-2019

Part A: Useful Visual Charts.

Number **Operation**

$5(3) + 8^2$

Operation
Variable **Number**

$5n \div 10$

Use a net to find the *S. A* of a prism

$= \frac{1}{2}(10 \times 12)$
$= \frac{1}{2}(120)$
$= 60 \text{ cm}^2$

$S.A. = 60 + 60 + 71.5 + 55 + 71.5$
$S.A. = 318 \text{ cm}^2$

Multiplication

In algebra, the multiplication sign is often omitted.

$4xy$

4 times x times y

Division

In algebra, we use the horizontal division bar.

$\dfrac{x}{4}$

x divided by 4

$2xy$

$a^2 + 3$

$m^3 - 1$

Examples of Non linear expressions

$6y$

$5x + 8$

$n - 6$

Examples of linear expressions.

The term refers to a shape that is flat with only two dimensions.

length

width

A two-dimensional figure.

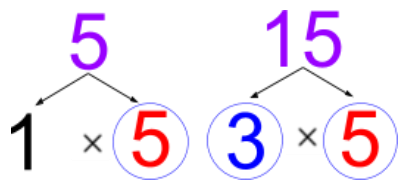The term refers to any figure that has three dimensions: a length, a width, and a height.

height

length

width

A three-dimensional figure.

$a(b + c) = ab + ac$

$a(b - c) = ab - ac$

Distributive Property.

Variable   Operation

$3x + 4$ ← Constant

Term

Be able to identify components of an algebraic expression.

$$5 \qquad 15$$

$$1 \times (5) \quad (3) \times (5)$$

Find the greatest common factor (GCF) of 5x and 15x

$$5x = 1 \cdot \boxed{5} \cdot \boxed{x}$$
$$15x = 3 \cdot \boxed{5} \cdot \boxed{x}$$

$$\text{GCF} = 5 \cdot x$$
$$= 5x$$

GCF of 5x and 15x is 5x

Biased Data

Convenience sampling | Voluntary response sampling

Unbiased Data

Simple random sampling | Systematic random sampling
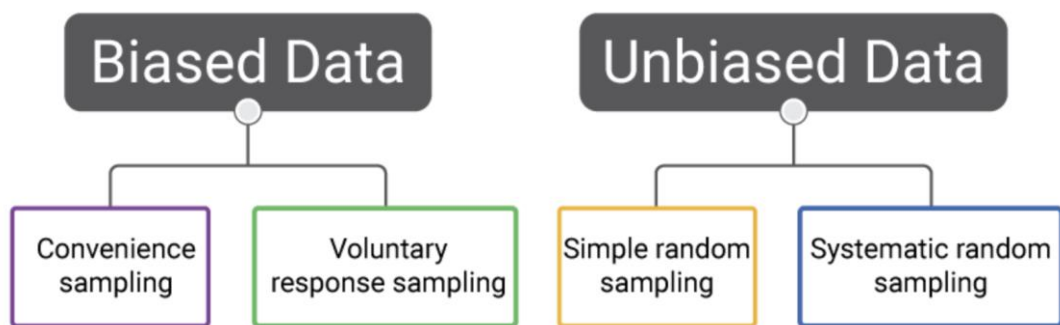
Think about the differences between these sampling methods.

Addition Equations

$$x + \ \blacksquare \ = \ \bullet$$
$$- \ \blacksquare \qquad - \ \blacksquare$$

$$x = \bullet - \blacksquare$$

Subtraction Equations

$$x - \ \blacksquare \ = \ \bullet$$
$$+ \ \blacksquare \qquad + \ \blacksquare$$

$$x = \bullet + \blacksquare$$

A general model for solving addition and subtraction one step equations.

<	>	≤	≥
is less than is under is below	is greater than is higher than exceeds	is less than or equal to at most no more than	is greater than or equal to at least no less than
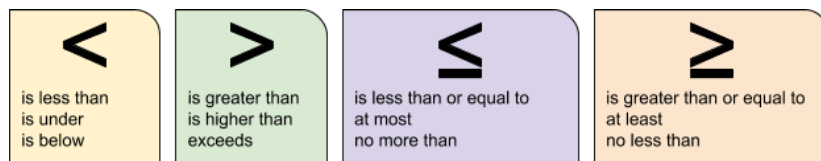
Using inequality symbols effectively.

r d

$$r = \frac{d}{2}$$
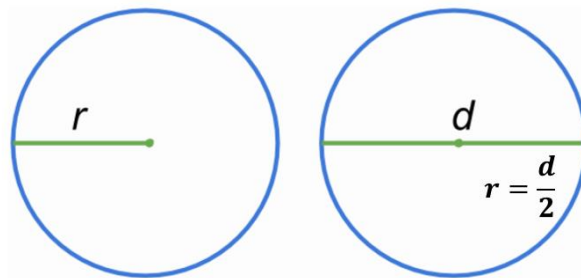
$$A = \pi r^2$$

Use the formula, to find the area of a circle.

Identify the two operations → **Undo addition or subtraction** → **Undo multiplication or division**
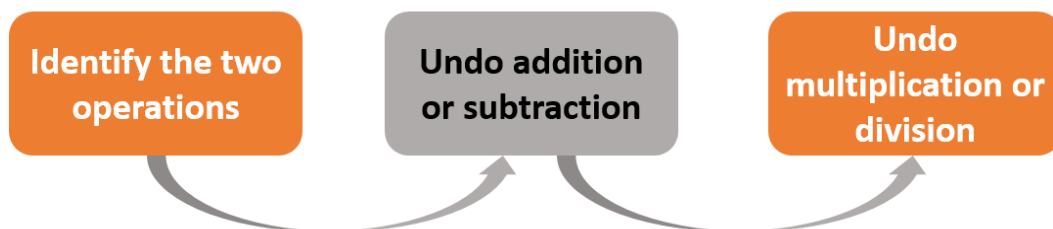
A strategy for solving two step equations.

edge

vertex

face
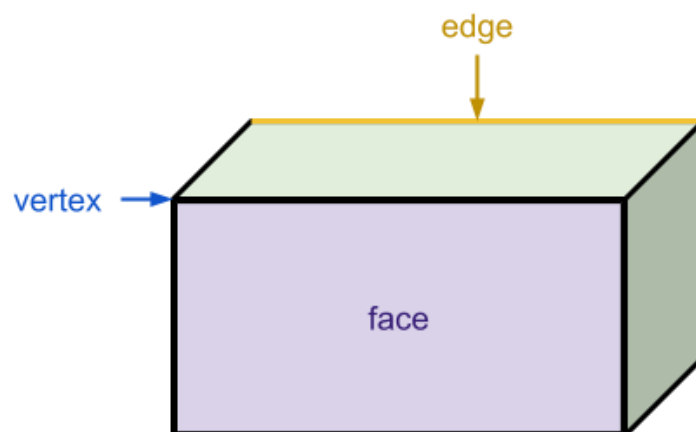
Locating parts of a prism will help with when classifying 3D figures.

Circle

diameter

radius
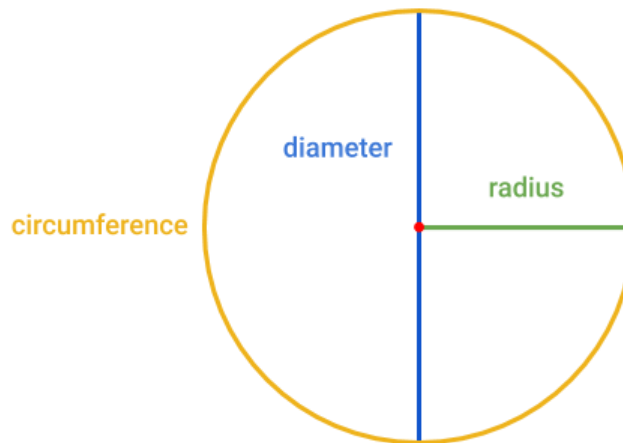
circumference

Locating parts of a circle will help with circumference, and area problems.

B

50°

A

C
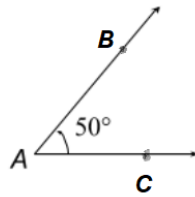
Vertex: *A*

Name: ∠*A*, ∠*BAC*, ∠*CAB*

Measure: *m* ∠*A* = 50°

∠*A*: Angle *A*

m∠*A*: Measure of angle *A*

Notation and layout are essential when working classifying angles.

Chapter 5

Evaluate each expression if $a = 3, b = 5$, and $c = 7$.

1. $a + c$ **2.** $a - b$ **3.** $2a^2$

4. $b^2 - c$ **5.** $\frac{b-5}{2}$ **6.** $\frac{a^3}{3}$

7. $a + c - b$ **8.** $12 - (a + b)$ **9.** $a - b - 2$

Describe the relationship between the terms of each arithmetic sequence. Then write the next three terms.

10. 0, 6, 12, 18, …   **11.** 1.5, 3, 4.5, 6, …

Find the 20th term in each arithmetic sequence.

12. 4, 8, 12, 16, …   **13.** 13, 23, 33, 43, …

Name the property shown by each statement.

14. $(ab)\, c = c\, (ab)$ **15.** $6m + (3m + 5) = (6m + 3m) + 5$

16. $0 \cdot 5x = 0$ **17.** $4(a + 6) = 4(a) + 4(6)$

Simplify each expression.

18. $3x + (2 + 7x)$ **19.** $7x\, (5)$

Use the Distributive Property to evaluate each expression.

20. $(70 - 2)\, 5$ **21.** $-4\, (-3 + 5)$

Use the Distributive Property to rewrite each expression.

22. $5(x + y)$

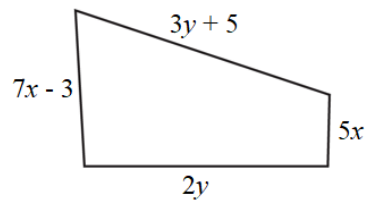**23.** $6(m - 5)$

24. $-8(5 - 2a)$

25. $-12(5m + 6)$

26. $3b - 8 + 2b$

27. $-\frac{1}{6}x - \frac{1}{3} + \frac{4}{9}x - \frac{1}{2}$

Write an expression in simplest form for the perimeter of the given quadrilateral.

28.

29. Mariam bought x pens for AED 10 each, and y books for AED 70 each.

    a. Write an expression to show the total amount of money Mariam spent.

    b. If Mariam bought 6 pens and 2 books, how much money did she spend?

Add.

30. $(2x + 7) + (5x - 3)$

31. $(-4x - 4) + (-x + 8)$

32. $(-x + 15) + (-9x + 4)$

33. $(1.5x + 2.4) + (-4.5x + 3.6)$

Subtract.

34. $(7x + 7) - (x + 3)$

35. $(4x - 4) - (x - 5)$

Grade: 7
Mock Examination Paper 1

Part A
Multiple Choice Questions (Choose one correct answer only)

1. What is the value of $7g - 2h$, given $g = 3$ and $h = 5$?

| A. 10 | B. 11 | C. -10 | D. -11 |

2. Solve the given equation;
$$p + 19 = -3$$

| A. -22 | B. 22 | C. 16 | D. -16 |

3. Given, the figure, which pair of angles are adjacent?

Given: *r* and *s* are straight lines.
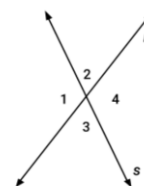
| A. $\angle 1$ and $\angle 2$ | B. $\angle 1$ and $\angle 4$ | C. $\angle 2$ and $\angle 3$ | D. There are no adjacent pair of angles |

4. What is the circumference of the given circle? Round to the nearest tenth.
   Use 3.14 for π.

9 mm

| A. 28.26 mm | B. 31.4 mm | C. 5.65 mm | D. 56.52 mm |

5. The letters A, E I, O and U are placed in a bag. A letter is picked at random.
   Find the probability of selecting the letter E ? B

| A. $\frac{1}{4}$ | B. $\frac{1}{5}$ | C. $\frac{1}{2}$ | D. $\frac{1}{3}$ |

6. There are 520 students in a school. In a survey, 4 out of 20 students preferred basketball. Predict how many students at the school prefer basketball.

| **A.** 112 | **B.** 108 | **C.** 104 | **D.** 100 |

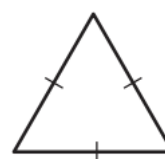7. Name the property used in the statement $6y + 0 = 6y$

| **A.** Additive Identity Property | **B.** Commutative Property of Multiplication | **C.** Associative Property of Addition | **D.** Associative Property of Multiplication |

8. Solve the given equation;

$$\frac{f}{4.8} = 3$$

| **A.** 1.44 | **B.** 0.4 | **C.** 14.4 | **D.** 144 |

9. What is the classification of the given triangle, given its markers.

| A. Obtuse | B. Right | C. Isosceles | D. Equilateral |

10. Find the total area of the given figure.
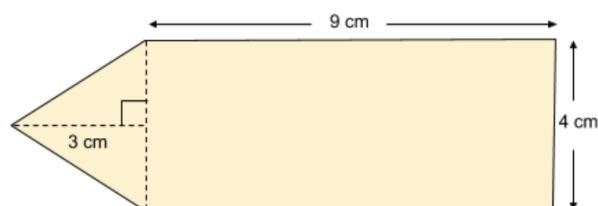
| **A.** 36 cm^2 | **B.** 40 cm^2 | **C.** 38 cm^2 | **D.** 42 cm^2 |

11. Lunch consists of choosing 1 salad and 1 soup.
    There are 2 salads to choose from – Pasta or Potato
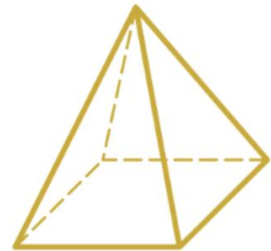   There are 3 soups to choose from – Tomato, Broccoli or Lentil

    What is the probability of selecting pasta salad and a tomato soup ?

A. $\frac{1}{4}$	B. $\frac{1}{2}$	C. $\frac{1}{3}$	D. $\frac{1}{6}$

12. What is $9x - 9 - 10x + 10$ in simplest form?

A. $-x + 1$	B. $19x + 4$	C. $-x + 4$	D. $19x - 16$

13. What is the name of this 3D shape ?

A. Triangular Pyramid	B. Pentagonal Pyramid	C. Square Pyramid	D. Cube

14. Find the volume of give pyramid. Give your answer to the nearest whole number.
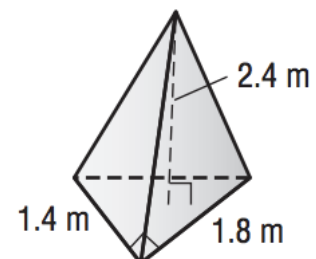
A. 6 m³	B. 1 m³	C. 12 m³	D. 2 m³

15. Use the Fundamental Counting Principle to find the total number of outcomes when tossing 4 coins.

A. 10	B. 12	C. 14	D. 16

16. Select an appropriate type of display, if you want to display the football scores by team members, as compared to the rest of the team.

A. Line graph	B. Circle graph	C. Box plot	D. Histogram

17. Subtract $(x + 3) - (5x - 2)$

A. $-4x + 5$	B. $6x + 5$	C. $-4x + 1$	D. $6x + 1$

18. Solve the following inequality;

$$\frac{x}{5} - 7 > 3$$

A. $x > 50$	B. $x > \frac{1}{21}$	C. $x > 21$	D. $x > \frac{1}{50}$

19. Find the surface area of the pyramid ?

9 cm

9 cm

9 cm
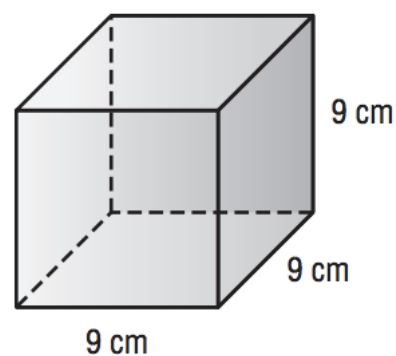
A. 81 cm^2	B. 486 cm^2	C. 54 cm^2	D. 729 cm^2

20. The two spinners are spun.
    Find the probability of getting a 2 and the letter B, P(2 and B) ?
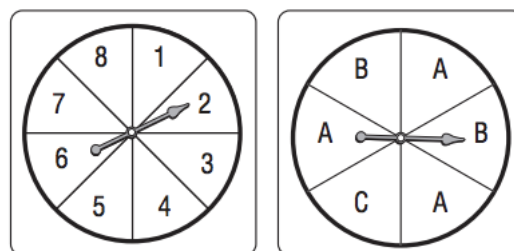
A. $\frac{1}{8}$	B. $\frac{1}{24}$	C. $\frac{1}{3}$	D. $\frac{1}{16}$

Part B
Write your answer in the space provided.

1. Hamdan collects toy cars. Each month, the number of toy cars increase. The table
    shows the number of toy cars he has in the first four months.

Month	Number of Toy Cars
1	20
2	25
3	30
4	35

If the pattern continues, how many cars will Hamdan have in Month 8 ?

_____

2. Sara wants to put 8 flowers in each pot. If she has 12 pots, how many flowers should
    she buy?

_____

3. Angle 3 and angle 4 are complementary.
    If $m\angle 3 = 11°$, what is $m\angle 4$?

$m\angle 4 =$ _____°

4. Saeed is painting a circle on a field. The circle has a radius of 1 meter.
    Using 3.14 for π to find the area of this circle.

_____ m^2

5. A number cube is rolled 50 times and lands on 4 ten times and on 6 five times.
    Find the experimental probability of landing on a 4.

_____

6. A store owner wants to know how much people spend on TVs. He decides to stand
    outside his store, and ask people if they would like to participate in a survey. If yes,
    they agree, the answer some questions. The store owner surveys 3 people, and
    concludes that most spend more than AED 10,000 on TVs.
    Is this conclusion valid? Justify your answer.

_____
_____
_____

7. Use the Distributive Property to rewrite the following expression;
$$3(9) + 3(11).$$

   Then, evaluate this expression.
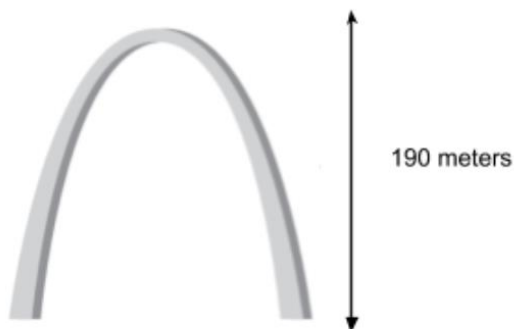
   _____

8. Solve the given equation;

   $$-0.7(d - 1.5) = -7$$

   Leave your answer as a decimal, or fraction

   $d =$ _____

9. Find the length of the model, given the scale 1 cm = 5 meters, and its actual height is 190 meters.

190 meters

10. Suppose the length of each edge for a cube of ice is 4 centimeters. Find the surface area of the cube.

    _____cm^2

11. Describe a situation that you could use to answer a 12-question quiz, if four questions are true or false questions.
    _____
    _____

12. The double box plot shows the number of Calories per serving for various fruits and vegetables. Compare the centers and variations of the two populations. Write an inference you can draw about comparing the calories.

Calories per Serving

Fruits

Vegetables

0   25   50   75   100   125   150   175   200

_____
_____
_____

–
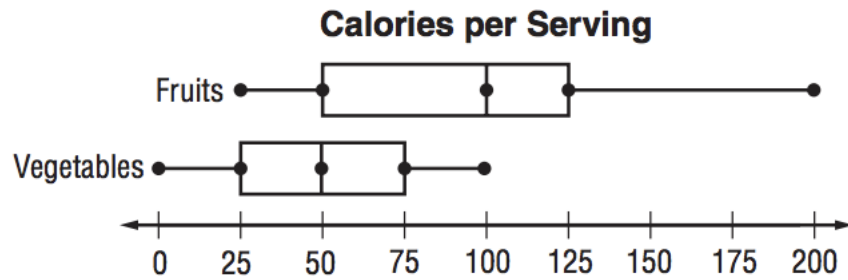
13. Naser bought 1 sandwich and 1 juice. He paid AED $(3x + 7)$ for his sandwich and AED $(2x - 2)$ for the juice.

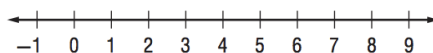Write an expression for the total amount of money Naser spent on food.

_____

14. The rectangle shown has an area of $(5x + 35)$ square centimeters.

Factor the expression for the area of this rectangle.

_____

15. Solve the inequality, $p + 19 < 22$.
Using your answer, represent the solution on the given number line.

−1   0   1   2   3   4   5   6   7   8   9

16. Saeed and Zayed split apples evenly.
They each have at least 6 pieces. Let *a* represent the total number of apples in a bag.

Set up, and solve an inequality to represent the number of apples in the bag ?

_____

17. There are 4 passengers in a car. In how many ways can the passengers sit in the 4 passenger seats of the car?

_____

18. A football is in the shape of a sphere
Describe the cross section that is made by a vertical slice ?

_____

Part A
Multiple Choice Questions (Choose one correct answer only)

1. What are the next three terms in the sequence $0.9, 1.5, 2.1, 2.7 \ldots$?

A. $2.7, 3.3, 3.8 \ldots$	**B.** $3.2, 3.7, 4.2 \ldots$	**C.** $3.3, 3.9, 4.3 \ldots$	**D.** $3.3, 3.9, 4.5 \ldots$

2. What is the value of $-3(y + 4)$?

A. $y + 7$	**B.** $4y - 3$	**C.** $-3y - 12$	**D.** $-4y + 3$

3. Add $(-5x + 1) + (7x + 10)$

A. $12x + 9$	**B.** $-2x + 11$	**C.** $12x + 11$	**D.** $2x + 11$

4. What is the name of of this figure ?
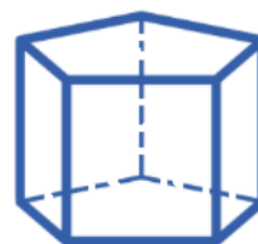
A. Triangular Prism	**B.** Rectangular Prism	**C.** Pentagonal Prism	**D.** Cube

5. What is the GCF of $8xy$ and $2x^2$?

A. $2x$	**B.** $2y$	**C.** $2x^2$	**D.** $16x^3y$

6. Solve the given equation;
$$\frac{h}{4} = 20$$

A. 24	**B.** 80	**C.** 100	**D.** 0.2

7. Find the volume of the composite figure.

4 m — 5 m

12 m

6 m

6 m
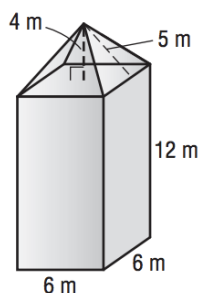
| **A.** 440 m^3 | **B.** 410 m^3 | **C.** 480 m^3 | **D.** 400 m^3 |

8. What value of x makes this equation true?

$$3x + 18 = 51$$

| A. 10 | B. 13 | C. 12 | D. 11 |

9. An inequality is represented on the number line. Select the correct expression that represents the given solution.

4 5 6 7 8 9 10 11 12 13 14
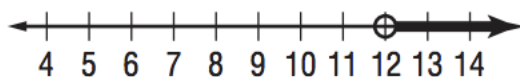
| A. $x < 12$ | B. $x > 12$ | C. $x \leq 12$ | D. $x \geq 13$ |

10. Solve the following inequality;
$$6x + 1 > 2$$

| **A.** $x > \frac{1}{3}$ | **B.** $x > \frac{1}{6}$ | **C.** $x > \frac{1}{4}$ | **D.** $x > 6$ |

11. Describe the shape resulting from a horizontal cross section of a rectangular prism.

| A. Square | B. Rectangle | C. Circle | D. Pentagon |

12. What is the volume of the right triangular prism? a
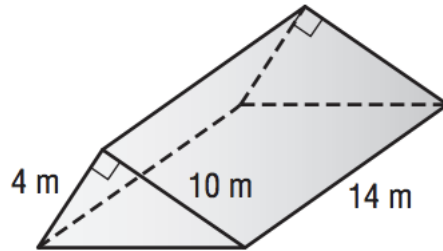
| **A.** 280 m^3 | **B.** 240 m^3 | **C.** 220 m^3 | **D.** 260 m^3 |

13. Find the value of the permutation P(7, 4).

| **A.** 11 | **B.** 28 | **C.** 330 | **D.** 840 |

Write your answer in the space provided.

1. Evaluate $\frac{9d}{e}$ if $d = 2$ and $e = 2$.

   _____

2. Draw the top, side and front view of the given shape;
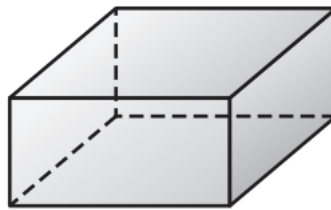
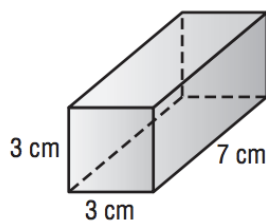3. Name the multiplication property shown in the given equation.

$$11 \cdot m = m \cdot 11$$

   _____

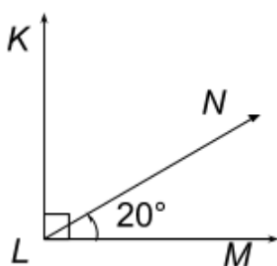4. Simplify the following algebraic expression;

$$6p + q - 11 - 5q + 12$$

   _____

5. What is $(6p + 5) - (-3p - 1)$?
   Give you answer in simplest form.

   _____

6. Find the volume of the prism. Round to the nearest tenth if necessary.

3 cm

7 cm

3 cm

$V =$ _____ cm^3

7. What is the measure of $\angle KLN$?

K

N

20°

L   M

$\angle KLN =$ _____ °

8. The sum of the measures of the angles in a triangle is 180°. Given two angles are 62° and 53°, find the missing value for angle $x°$.

Write and solve an equation to find the missing measure.

_____ °

9. Solve the given equation;

$$\frac{2j}{5} = \frac{1}{4}$$

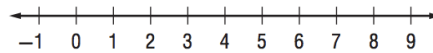Give your answer, as a decimal or fraction in simplest form.

_____

10. A model ship is built to a scale of 1 centimeter : 7 meters. The length of the model is 25 centimeters. What is the actual length of the ship?

_____

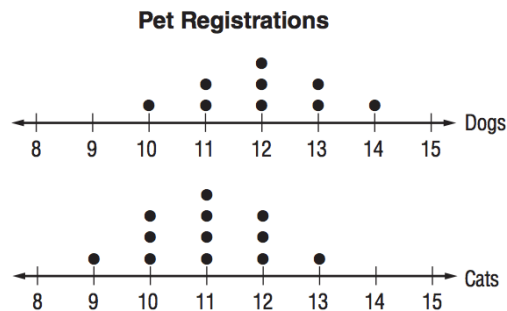11. Solve the inequality, and represent the solution on the given number line.

$$\frac{t}{-2} > 0.5$$

12. Find the measure of $x°$ in the triangle below. Then, classify the triangle by its side lengths and angles.

_____
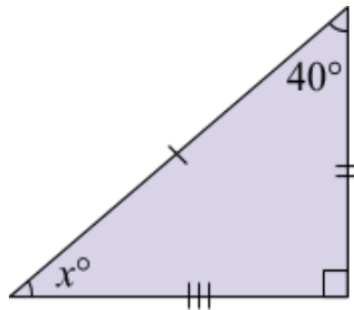
13. The double dot plot shows the number of pet registrations in a week.

Pet Registrations

Compare the centers and variations of the two populations. Round to the nearest tenth.

_____

_____