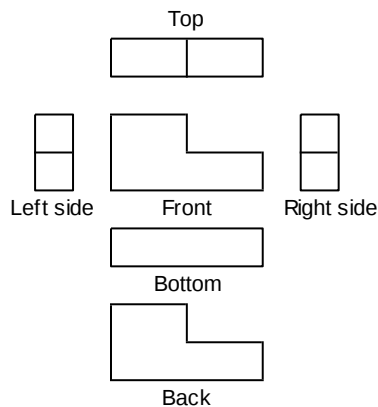


PAT Entire Course Practice #3

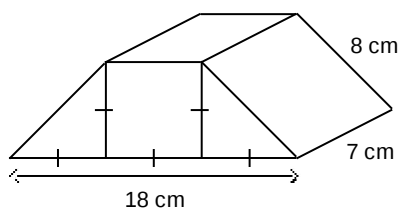
Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1. Determine the value of $\sqrt{2.56}$.
a. 0.64 b. 0.16 c. 0.8 d. 1.6
- _____ 2. Name the two whole numbers whose squares are closest to $\frac{525}{10}$.
a. 49, 64 b. 4, 9 c. 7, 8 d. 16, 25
- _____ 3. Which decimal has a square root between 14 and 15?
i) 240.3
ii) 169
iii) 14.5
iv) 204.5
a. ii b. iii c. i d. iv
- _____ 4. Which square roots are correct to the nearest tenth?
i) $\sqrt{0.4} = 0.2$
ii) $\sqrt{0.5} = 0.7$
iii) $\sqrt{0.6} = 0.3$
iv) $\sqrt{0.7} = 0.8$
v) $\sqrt{0.9} = 0.9$
a. i, iii b. i, iii, v c. ii, iv, v d. i, ii, v
- _____ 5. Here are the 6 views of an object made using centimetre cubes. Determine its surface area.



- a. 14 cm^2 b. 12 cm^2 c. 13 cm^2 d. 24 cm^2
- _____ 6. This object is composed of two right triangular prisms and a right rectangular prism. Determine the surface area of the object.



- a. 298 cm^2 b. 424 cm^2 c. 568 cm^2 d. 352 cm^2

7. Which expression has a value closest to 2?

- i) $(-2) \times (-3) - (-3)^2 - (3 \times 2)^0$
 ii) $(-5 \times 3) + 4^2 - (-2)^0$
 iii) $(-2)^0 - (-2)^1 - (-2)^2$
 iv) $(-3)^2 + (-3) - (-2)^2 + (-2)^0$
 a. iii b. iv c. i d. ii

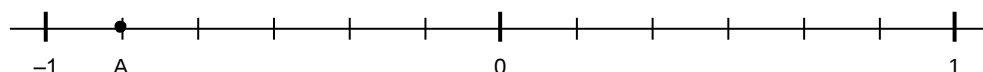
8. Write $-(7^2)^3$ as a power.

- a. 7^5 b. -7^5 c. -7^6 d. 7^6

9. Write $[(-7) \times 3]^4$ as a product of powers.

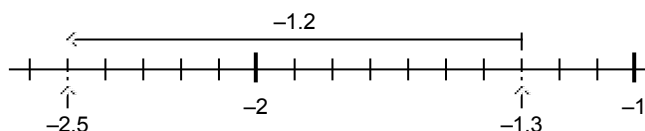
- a. $4(-7) \times 3$ b. $(-4)^4$ c. $(-7)^4 + 3^4$ d. $(-7)^4 \times 3^4$

10. Which rational number is represented by the letter A on the number line?



- a. -0.5 c. $-\frac{5}{6}$
 b. -0.8 d. $-\frac{5}{6}$

11. Write the addition statement that this number line represents.

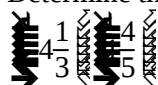


- a. $-2.5 + (-1.2) = -1.3$ c. $-1.3 + (-1.2) = -2.5$
 b. $-2.5 + 1.2 = -1.3$ d. $-1.3 + 2.5 = -1.2$

12. Yesterday, the temperature of a freezer was -4.4°C . When the technician checked the freezer today, its temperature had decreased by 9.8°C . Determine the temperature of the freezer today.

- a. -5.4°C b. 5.4°C c. 14.2°C d. -14.2°C

13. Determine this product.



- a. $\frac{4}{7}$ b. $\frac{8}{215}$ c. $-\frac{8}{215}$ d. $-\frac{4}{75}$

14. Which table of values represents the equation $y = 11 - 4x$?

a.

x	-2	-1	0	1	2
y	5	6	7	8	9

c.

x	-2	-1	0	1	2
y	3	7	11	15	19

b.

x	-2	-1	0	1	2
y	19	15	11	7	3

d.

x	-2	-1	0	1	2
y	-14	-7	0	7	14

15. Which points lie on the graph represented by the equation $y = 14 - 5x$?

P(1, 9), Q(2, 18), R(2, 4), S(0, 9)

a. P and Q

b. Q and R

c. R and S

d. P and R

16. From the list, which terms are like $5x$?

$5x^2$, $4x$, 3 , $-8x$, $-5x$, $9x^2$, 5

a. $-5x$

b. $5x^2$, 5

c. $4x$, $-8x$, $-5x$

d. $5x^2$, $-5x$, $-5x^2$

17. Add: $(3x^2 - 5) + (6x^2 - 10x - 6)$

a. $9x^2 - 10x + 11$

b. $9x^2 - 10x - 11$

c. $9x^2 - 15x - 6$

d. $18x^2 - 10x - 30$

18. Add: $(-4x^2 + 3 - 7x) + (7 + x^2 + 10x)$

a. $-3x^2 - 3x + 10$

b. $-5x^2 - 3x + 10$

c. $-5x^2 + 3x + 10$

d. $-3x^2 + 3x + 10$

19. Multiply: $3(4x)$

a. $9x$

b. $7x$

c. $12x$

d. 6

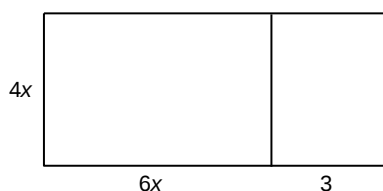
20. Which of these multiplication sentences is modelled by the rectangle below?

i) $4x(6x - 3)$

ii) $4x(-6x + 3)$

iii) $6x(4x + 3)$

iv) $4x(6x + 3)$



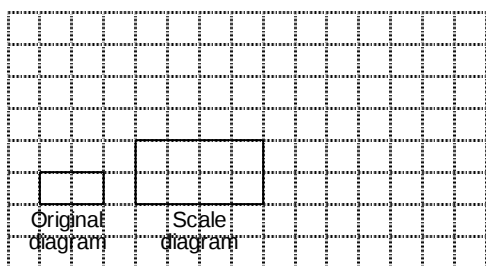
a. iii

b. ii

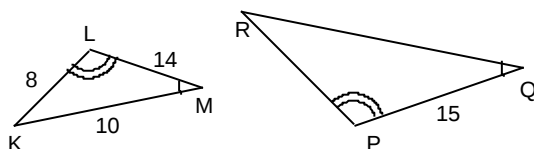
c. i

d. iv

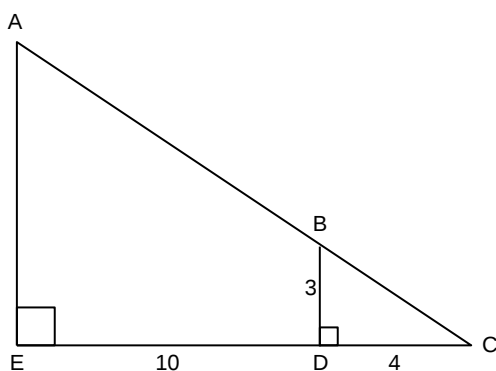
- ____ 21. Solve: $4v - 6 = -14$
 a. $v = -\frac{1}{2}$ b. $v = 2$ c. $v = -2$ d. $v = -2$
- ____ 22. Which of these numbers is a solution of the inequality $h + 7 \geq 0$?
 7, -7, -6, -8
 a. 7, -6, -8 b. -7, -6, -8 c. 7, -7, -6 d. 7, -6
- ____ 23. Determine the scale factor for this scale diagram.



- a. 4 b. 6 c. $\frac{1}{2}$ d. 2
- ____ 24. A circle has diameter 56 cm. The diameter of the reduction is 7 cm. Determine the scale factor.
 a. $\frac{1}{8}$ b. 8 c. $\frac{1}{49}$ d. 49
- ____ 25. These triangles are similar. Determine the length of QR to the nearest tenth.



- a. 10.7 b. 12 c. 26.3 d. 18.8
- ____ 26. Determine the length of AE in this pair of similar triangles.

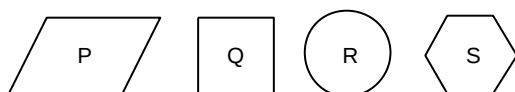


- a. 3.3 b. 10.5 c. 7.5 d. 4.3

27. When the shadow of a flagpole is 31.2 m long, a 1.6-m fencepost casts a shadow 2.6 m long. How tall is the flagpole?

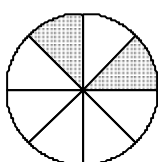
- a. 50.7 m b. 12.6 m c. 19.2 m d. 19.2 m

28. Which shapes have at least 2 lines of symmetry?



- a. Shapes P, Q, S c. Shapes Q, R, S
b. Shapes P, S d. Shapes P, Q, R, S

29. Which figure shows the rotation image of circle A after a 135° counterclockwise rotation about its centre?



Circle A

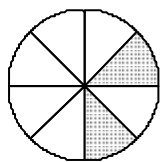


Figure i

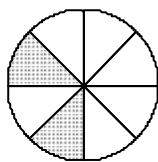


Figure ii

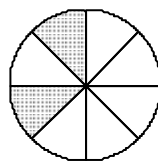


Figure iii

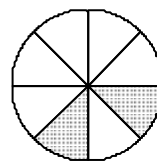
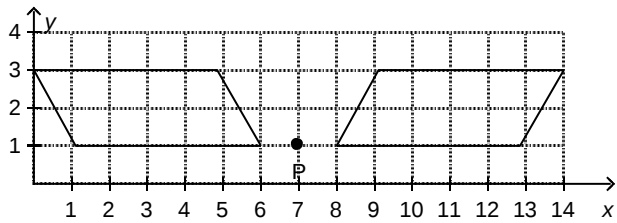


Figure iv

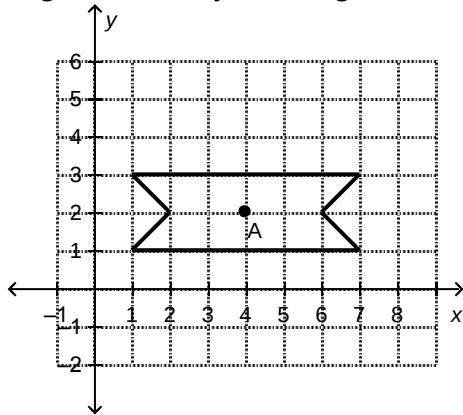
- a. Figure iv b. Figure i c. Figure iii d. Figure ii

30. Determine whether the two parallelograms are related by line symmetry, by rotational symmetry about point P, by both types of symmetry, or by neither.



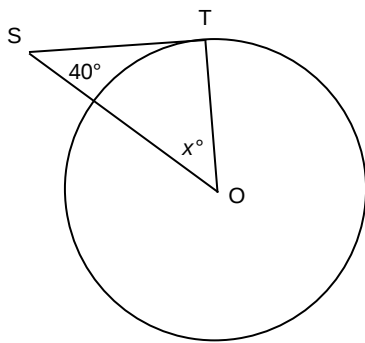
- a. Rotational symmetry
b. Neither
c. Line symmetry
d. Rotational symmetry and line symmetry

31. If this hexagon is rotated 90° clockwise about point A, how many lines of symmetry will there be in the diagram formed by the hexagon and its image?



- a. 4
b. 1
c. 2
d. 0

32. O is the centre of this circle and point T is a point of tangency. Determine the value of x° .



- a. 90°
b. 50°
c. 130°
d. 40°

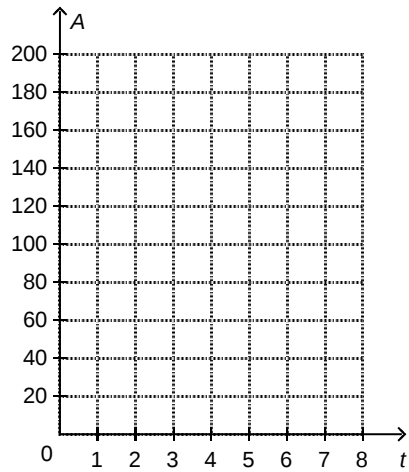
33. O is the centre of this circle. Determine the value of a° .

- ____ 38. A newspaper company wants to make sure that the pages of its newspaper appear in the correct order. Which population is it interested in testing?
- i) All newspapers printed
 - ii) Newspapers delivered to residences
 - iii) Newspapers sold at newspaper stands
 - iv) Newspapers delivered to businesses
- a. ii b. iv c. iii d. i
- ____ 39. A baker wants to check the quality of the muffins he bakes each day. Which of the following data collection methods would provide the most accurate information?
- i) Test one muffin from each batch
 - ii) Test all the muffins in the first batch
 - iii) Test all the muffins in a random batch
 - iv) Test all the muffins in the last batch
- a. i b. iv c. ii d. iii
- ____ 40. A school's cafeteria manager wants to know whether changing the cafeteria menu will increase its the number of lunch specials it sells. On Wednesday, the manager surveys as many people in the cafeteria as he can to find out. Which sampling method did he use?
- a. Simple random sampling
 - b. Cluster sampling
 - c. Convenience sampling
 - d. Systematic sampling

Problem

41. A square has area $250\,000\text{ cm}^2$. Write the side length as a power of 10. Determine the side length in metres.
42. Identify, then correct, any errors in the work shown.
- $$\begin{aligned}
 &4^4 \times 4^3 \div 4^6 \\
 &= 4^{4 \times 3 \div 6} \\
 &= 4^2 \\
 &= 8
 \end{aligned}$$
43. a) Predict which expressions are between -1 and $+1$.
 b) Calculate each product.
- i) $(-18.9)(0.05)$
 - ii) $\left(-\frac{3}{2}\right)\left(-\frac{5}{4}\right)$
 - iii) $(-1.7)(-0.4)$
 - iv) $\left(\frac{6}{7}\right)\left(-\frac{7}{9}\right)$
44. Geoffrey has \$130 in his savings account. Each week he withdraws \$20.
- a) Write an equation that relates the amount of money in his account, A dollars, after t weeks.
 - b) Create a table of values for the relation, then graph the relation. Use values of t from 0 to 6. Will you join the points on the graph? Explain.

t	0	1	2	3	4	5	6
A							

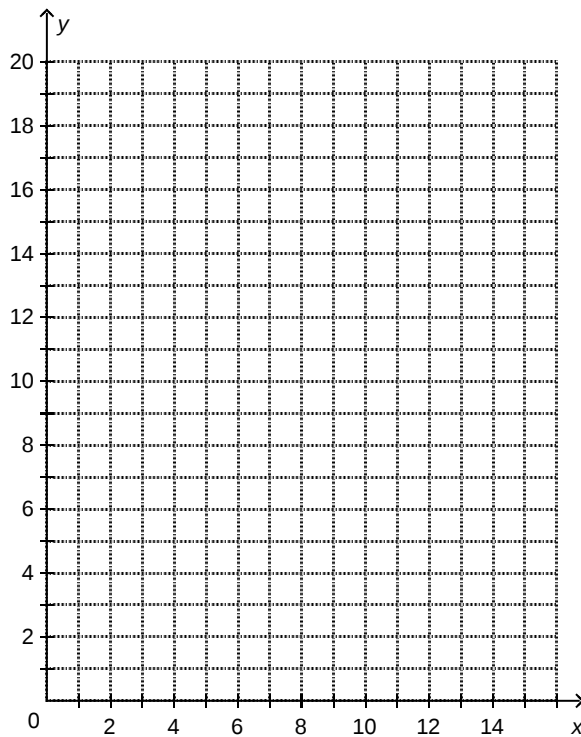


c) At what point will Geoffrey have \$50.00 in his account?

45. The data in this table represent a linear relation.

x	5	7	9	11
y	4	8	12	16

a) Graph the data.



b) Estimate the value of y when:

- i) $x = 6$
- ii) $x = 13$

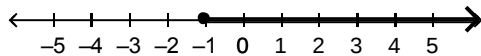
c) Estimate the value of x when:

- i) $y = 1$
- ii) $y = 15$

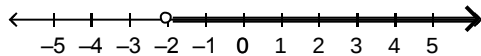
6

46. a) Write a polynomial with 7 terms that simplifies to $3x^2 + 6$.
b) Write a trinomial with degree 2 that cannot be simplified.
Explain why it cannot be simplified.
47. An item increased in price by \$38.25. This is a 17% increase. What did the item cost before the price increase?
a) Write an equation to solve the problem.
b) Solve the equation. Verify your solution.
48. Match each inequality with the graph of its solution below. If an inequality does not have a match, draw the graph of its solution on a number line.
- a) $p \leq 1$
 - b) $q > 2$
 - c) $r < -2$
 - d) $s \geq -1$
 - e) $t > 3$

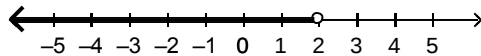
i) .



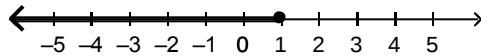
ii) .



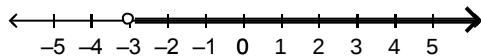
iii) .



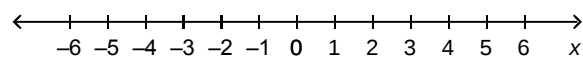
iv) .



v) .

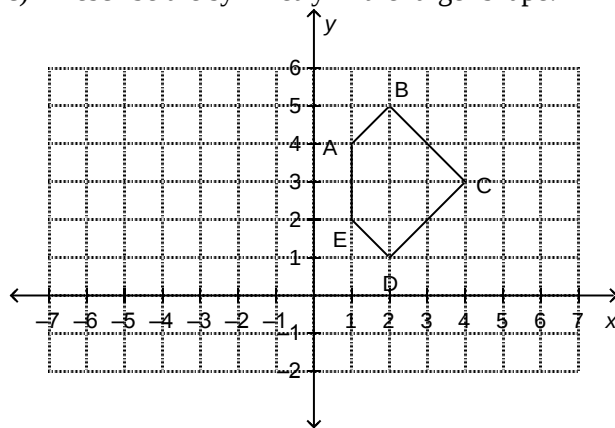


49. a) Solve the inequality: $2(5x + 2) - 3(x - 4) \geq 2(4x + 5)$
b) Did you have to reverse the inequality sign to solve the inequality? Explain.
c) Graph the solution.



50. This pentagon is part of a larger shape that is completed by rotating the pentagon 180° about the point $(1, 3)$.

- a) Draw the rotation image.
- b) List the coordinates of the vertices of the larger shape.
- c) Describe the symmetry in the larger shape.



PAT Entire Course Practice #3

Answer Section

MULTIPLE CHOICE

1. ANS: D PTS: 1 DIF: Easy REF: 1.1 Square Roots of Perfect Squares
LOC: 9.N5 TOP: Number KEY: Procedural Knowledge
2. ANS: C PTS: 1 DIF: Easy
REF: 1.2 Square Roots of Non-Perfect Squares LOC: 9.N6
TOP: Number KEY: Conceptual Understanding
3. ANS: D PTS: 1 DIF: Moderate
REF: 1.2 Square Roots of Non-Perfect Squares LOC: 9.N6
TOP: Number KEY: Conceptual Understanding
4. ANS: C PTS: 1 DIF: Moderate
REF: 1.2 Square Roots of Non-Perfect Squares LOC: 9.N6
TOP: Number KEY: Procedural Knowledge
5. ANS: D PTS: 1 DIF: Moderate
REF: 1.3 Surface Areas of Objects Made from Right Rectangular Prisms
LOC: 9.SS2 TOP: Shape and Space (3-D Objects and 2-D Shapes)
KEY: Procedural Knowledge
6. ANS: B PTS: 1 DIF: Easy
REF: 1.4 Surface Areas of Other Composite Objects LOC: 9.SS2
TOP: Shape and Space (3-D Objects and 2-D Shapes) KEY: Procedural Knowledge
7. ANS: B PTS: 1 DIF: Difficult
REF: 2.3 Order of Operations with Powers LOC: 9.N1
TOP: Number KEY: Procedural Knowledge
8. ANS: C PTS: 1 DIF: Easy REF: 2.5 Exponent Laws II
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge
9. ANS: D PTS: 1 DIF: Easy REF: 2.5 Exponent Laws II
LOC: 9.N2 TOP: Number KEY: Procedural Knowledge
10. ANS: D PTS: 1 DIF: Easy REF: 3.1 What Is a Rational Number?
LOC: 9.N3 TOP: Number KEY: Conceptual Understanding
11. ANS: C PTS: 1 DIF: Easy REF: 3.2 Adding Rational Numbers
LOC: 9.N3 TOP: Number KEY: Conceptual Understanding
12. ANS: D PTS: 1 DIF: Moderate REF: 3.2 Adding Rational Numbers
LOC: 9.N3 TOP: Number KEY: Problem-Solving Skills
13. ANS: D PTS: 1 DIF: Moderate REF: 3.4 Multiplying Rational Numbers
LOC: 9.N3 TOP: Number KEY: Procedural Knowledge
14. ANS: B PTS: 1 DIF: Moderate REF: 4.2 Linear Relations
LOC: 9.PR2 TOP: Patterns and Relations (Patterns) KEY: Procedural Knowledge
15. ANS: D PTS: 1 DIF: Moderate REF: 4.2 Linear Relations
LOC: 9.PR2 TOP: Patterns and Relations (Patterns) KEY: Procedural Knowledge
16. ANS: C PTS: 1 DIF: Easy REF: 5.2 Like Terms and Unlike Terms
LOC: 9.PR5 TOP: Patterns and Relations (Variables and Equations)
KEY: Conceptual Understanding
17. ANS: B PTS: 1 DIF: Moderate REF: 5.3 Adding Polynomials
LOC: 9.PR6 TOP: Patterns and Relations (Variables and Equations)
KEY: Procedural Knowledge

18. ANS: D PTS: 1 DIF: Moderate REF: 5.3 Adding Polynomials
 LOC: 9.PR6 TOP: Patterns and Relations (Variables and Equations)
 KEY: Procedural Knowledge
19. ANS: C PTS: 1 DIF: Easy
 REF: 5.5 Multiplying and Dividing a Polynomial by a Constant
 LOC: 9.PR7 TOP: Patterns and Relations (Variables and Equations)
 KEY: Procedural Knowledge
20. ANS: D PTS: 1 DIF: Easy
 REF: 5.6 Multiplying and Dividing a Polynomial by a Monomial
 LOC: 9.PR7 TOP: Patterns and Relations (Variables and Equations)
 KEY: Procedural Knowledge
21. ANS: C PTS: 1 DIF: Easy
 REF: 6.2 Solving Equations by Using Balance Strategies LOC: 9.PR3
 TOP: Patterns and Relations (Variables and Equations) KEY: Procedural Knowledge
22. ANS: C PTS: 1 DIF: Moderate
 REF: 6.4 Solving Linear Inequalities by Using Addition and Subtraction
 LOC: 9.PR4 TOP: Patterns and Relations (Variables and Equations)
 KEY: Procedural Knowledge
23. ANS: D PTS: 1 DIF: Easy
 REF: 7.1 Scale Diagrams and Enlargements LOC: 9.SS4
 TOP: Shape and Space (Transformations) KEY: Procedural Knowledge
24. ANS: A PTS: 1 DIF: Easy REF: 7.2 Scale Diagrams and Reductions
 LOC: 9.SS4 TOP: Shape and Space (Transformations)
 KEY: Procedural Knowledge
25. ANS: A PTS: 1 DIF: Easy REF: 7.4 Similar Triangles
 LOC: 9.SS3 TOP: Shape and Space (3-D Objects and 2-D Shapes)
 KEY: Procedural Knowledge
26. ANS: B PTS: 1 DIF: Moderate REF: 7.4 Similar Triangles
 LOC: 9.SS3 TOP: Shape and Space (3-D Objects and 2-D Shapes)
 KEY: Procedural Knowledge
27. ANS: D PTS: 1 DIF: Moderate REF: 7.4 Similar Triangles
 LOC: 9.SS3 TOP: Shape and Space (3-D Objects and 2-D Shapes)
 KEY: Procedural Knowledge
28. ANS: C PTS: 1 DIF: Easy REF: 7.5 Reflections and Line Symmetry
 LOC: 9.SS5 TOP: Shape and Space (Transformations)
 KEY: Conceptual Understanding
29. ANS: D PTS: 1 DIF: Moderate
 REF: 7.6 Rotations and Rotational Symmetry LOC: 9.SS5
 TOP: Shape and Space (Transformations) KEY: Procedural Knowledge
30. ANS: C PTS: 1 DIF: Easy
 REF: 7.7 Identifying Types of Symmetry on the Cartesian Plane
 LOC: 9.SS5 TOP: Shape and Space (Transformations)
 KEY: Procedural Knowledge
31. ANS: A PTS: 1 DIF: Moderate
 REF: 7.7 Identifying Types of Symmetry on the Cartesian Plane
 LOC: 9.SS5 TOP: Shape and Space (Transformations)
 KEY: Procedural Knowledge
32. ANS: B PTS: 1 DIF: Easy
 REF: 8.1 Properties of Tangents to a Circle LOC: 9.SS1

- TOP: Shape and Space (Measurement) KEY: Conceptual Understanding
33. ANS: A PTS: 1 DIF: Moderate REF: 8.3 Properties of Angles in a Circle
LOC: 9.SS1 TOP: Shape and Space (Measurement) KEY: Conceptual Understanding
34. ANS: D PTS: 1 DIF: Moderate REF: 8.3 Properties of Angles in a Circle
LOC: 9.SS1 TOP: Shape and Space (Measurement) KEY: Conceptual Understanding
35. ANS: A PTS: 1 DIF: Easy REF: 9.1 Probability in Society
LOC: 9.SP4 TOP: Statistics and Probability (Chance and Uncertainty)
KEY: Conceptual Understanding
36. ANS: B PTS: 1 DIF: Easy
REF: 9.2 Potential Problems with Collecting Data LOC: 9.SP1
TOP: Statistics and Probability (Data Analysis) KEY: Conceptual Understanding
37. ANS: D PTS: 1 DIF: Easy
REF: 9.3 Using Samples and Populations to Collect Data LOC: 9.SP2
TOP: Statistics and Probability (Data Analysis) KEY: Conceptual Understanding
38. ANS: D PTS: 1 DIF: Easy
REF: 9.3 Using Samples and Populations to Collect Data LOC: 9.SP2
TOP: Statistics and Probability (Data Analysis) KEY: Conceptual Understanding
39. ANS: A PTS: 1 DIF: Easy
REF: 9.3 Using Samples and Populations to Collect Data LOC: 9.SP2
TOP: Statistics and Probability (Data Analysis) KEY: Conceptual Understanding
40. ANS: C PTS: 1 DIF: Easy REF: 9.4 Selecting a Sample
LOC: 9.SP2 TOP: Statistics and Probability (Data Analysis)
KEY: Conceptual Understanding

PROBLEM

41. ANS:
The side length of the square in centimetres is: $\sqrt{250\,000}$ cm, or 500 cm
 $100\text{ cm} = 1 \times 10^2\text{ cm} = 1\text{ m}$
 $500\text{ cm} = 5 \times 10^2\text{ cm} = 5\text{ m}$
The side length of the square is 5 m.
- PTS: 1 DIF: Difficult REF: 2.2 Powers of Ten and the Zero Exponent
LOC: 9.N1 TOP: Number KEY: Problem-Solving Skills
42. ANS:
Errors:
The exponents should be added and subtracted, not multiplied and divided.
The result of 4^2 is 4×4 , not 4×2 .
- Correction:
 $4^4 \times 4^3 \div 4^6$
 $= 4^{4+3-6}$
 $= 4^1$
 $= 4$
- PTS: 1 DIF: Difficult REF: 2.4 Exponent Laws I
LOC: 9.N2 TOP: Number KEY: Problem-Solving Skills | Communication

43. ANS:

a) Expressions with numerical values less than 1 will be between -1 and $+1$.

i) $(18.9)(0.05)$ is less than $(20)(0.05) = 1$.

So, $(-18.9)(0.05)$ is between -1 and $+1$.

ii) $\left(\frac{3}{2}\right)\left(\frac{5}{4}\right)$ is greater than $\left(\frac{2}{2}\right)\left(\frac{4}{4}\right) = (1)(1) = 1$.

So, $\left(-\frac{3}{2}\right)\left(-\frac{5}{4}\right)$ is not between -1 and $+1$.

iii) $(1.7)(0.4)$ is less than $(2)(0.5) = 1$.

So, $(-1.7)(-0.4)$ is between -1 and $+1$.

iv) $\left(\frac{6}{7}\right)\left(\frac{7}{9}\right)$ is less than $\left(\frac{7}{7}\right)\left(\frac{9}{9}\right) = (1)(1) = 1$.

So, $\left(\frac{6}{7}\right)\left(-\frac{7}{9}\right)$ is between -1 and $+1$.

b) i) $(-18.9)(0.05)$

Use a calculator.

Key in -18.9×0.05 to display: -0.945

$(-18.9)(0.05) = -0.945$

ii) $\left(-\frac{3}{2}\right)\left(-\frac{5}{4}\right) = \frac{(-3)(-5)}{(2)(4)}$

$$= \frac{15}{8}$$

iii) Use mental math to determine the product:

$$(-17) \times (-4) = 68$$

Estimate to place the decimal point:

Since -1.7 is close to -2 and -0.4 is close to 0 , then $(-1.7)(-0.4)$ is close to $(-2)(0) = 0$.

So, place the decimal point before the 3 in 34.

$$\text{Then, } (-1.7)(-0.4) = 0.68$$

iv) Simplify the fractions before multiplying.

$$\left(\frac{6}{7}\right)\left(-\frac{7}{8}\right) = \left(\frac{\cancel{3}^1}{\cancel{1}^1}\right)\left(-\frac{\cancel{7}^1}{\cancel{8}_4}\right)$$

$$= \frac{(3)(-1)}{(1)(4)}$$

$$= -\frac{3}{4}$$

PTS: 1

DIF: Difficult

REF: 3.4 Multiplying Rational Numbers

LOC: 9.N3

TOP: Number

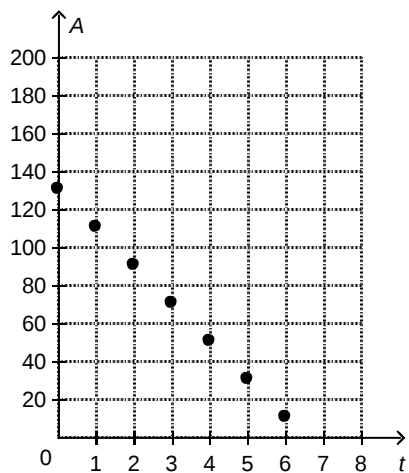
KEY: Problem-Solving Skills | Communication

44. ANS:

a) $A = 130 - 20t$

b)

t	0	1	2	3	4	5	6
A	130	110	90	70	50	30	10



I will not join the points because the data are discrete.

c) Geoffrey will have \$50.00 in his account after 4 weeks.

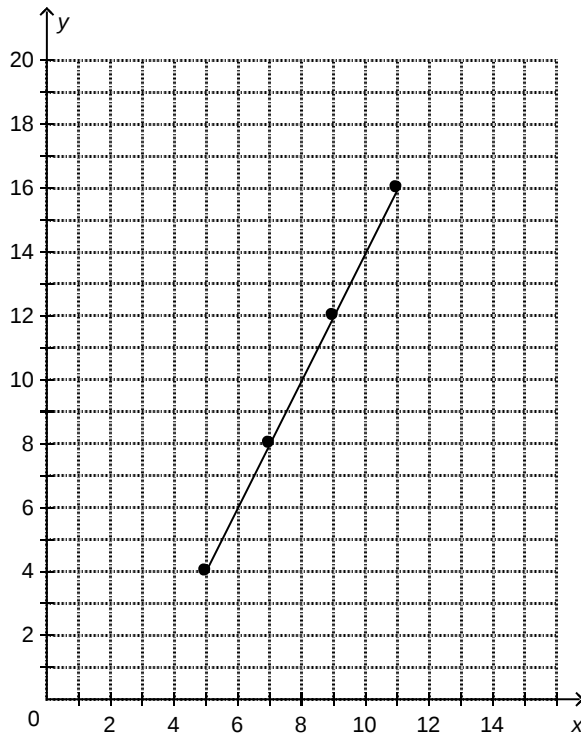
PTS: 1 DIF: Difficult REF: 4.2 Linear Relations

LOC: 9.PR2 TOP: Patterns and Relations (Patterns)

KEY: Problem-Solving Skills | Communication

45. ANS:

a)



b) i) When $x = 6$, $y = 6$.

ii) When $x = 13$, $y = 20$.

c) i) When $y = 1$, $x = 3.5$.

ii) When $y = 15$, $x = 10.5$.

PTS: 1 DIF: Moderate REF: 4.5 Using Graphs to Estimate Values
 LOC: 9.PR2 TOP: Patterns and Relations (Patterns) KEY: Procedural Knowledge

46. ANS:

- a) Answers will vary. Any polynomial with 7 terms in which the sum of the coefficients of x^2 is 3 and the sum of the constant terms is 6. The coefficients of any other terms must sum to 0.
- b) $4x^2 - 3y + 6$; This polynomial cannot be simplified because there is only one term of each degree and there are no terms with a zero coefficient.

PTS: 1 DIF: Difficult REF: 5.2 Like Terms and Unlike Terms
 LOC: 9.PR5 TOP: Patterns and Relations (Variables and Equations)
 KEY: Problem-Solving Skills | Communication

47. ANS:

- a) Let d represent the original price of the item. Then, 17% of the number is $17\% \times d$, or $0.17d$.
 An equation is: $0.17d = 38.25$

b) $0.17d = 38.25$

$$\frac{0.17d}{0.17} = \frac{38.25}{0.17}$$

$$d = 225$$

The original price of the item is \$225.

Verify:

$$17\% \text{ of } 225 = 0.17 \times 225$$

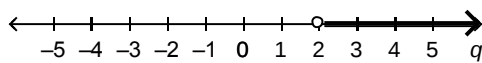
$$= 38.25$$

So, the solution is correct.

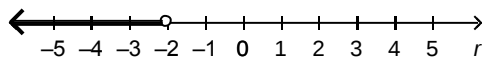
PTS: 1 DIF: Difficult REF: 6.1 Solving Equations by Using Inverse Operations
 LOC: 9.PR3 TOP: Patterns and Relations (Variables and Equations)
 KEY: Problem-Solving Skills | Communication

48. ANS:

- a) Graph iv
 b) .



- c) .



- d) Graph i
 e) Graph v

PTS: 1 DIF: Difficult REF: 6.3 Introduction to Linear Inequalities
 LOC: 9.PR4 TOP: Patterns and Relations (Variables and Equations)
 KEY: Problem-Solving Skills

49. ANS:

a) $2(5x + 2) - 3(x - 4) - x \geq 2(4x + 5)$

$$10x + 4 - 3x + 12 - x \geq 8x + 10$$

$$10x - 3x - x + 4 + 12 \geq 8x + 10$$

$$6x + 16 \geq 8x + 10$$

$$6x + 16 - 6x \geq 8x + 10 - 6x$$

$$16 \geq 2x + 10$$

$$16 - 10 \geq 2x + 10 - 10$$

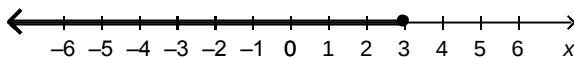
$$6 \geq 2x$$

$$\frac{6}{2} \geq \frac{2x}{2}$$

$$x \leq 3$$

b) No, I did not have to reverse the inequality sign because I did not have to multiply or divide each side of the inequality by a negative number.

c)



PTS: 1

DIF: Difficult

REF: 6.5 Solving Linear Inequalities by Using Multiplication and Division

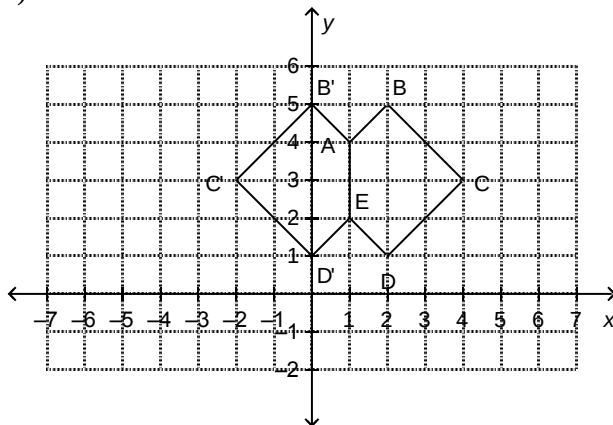
LOC: 9.PR4

TOP: Patterns and Relations (Variables and Equations)

KEY: Problem-Solving Skills | Communication

50. ANS:

a)



b) A(1, 4), B(2, 5), C(4, 3), D(2, 1), E(1, 2), D'(0, 1), C'(-2, 3), B'(0, 5)

c) The larger shape has line symmetry along the vertical line through 1 on the x-axis and the horizontal line through 3 on the y-axis, and rotational symmetry of order 2 about the point (1, 3).

PTS: 1

DIF: Difficult

REF: 7.7 Identifying Types of Symmetry on the Cartesian Plane

LOC: 9.SS5

TOP: Shape and Space (Transformations)

KEY: Problem-Solving Skills | Communication