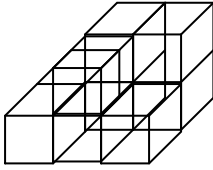
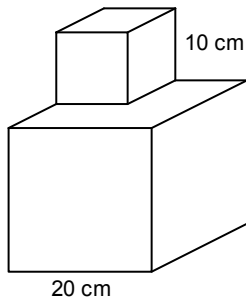




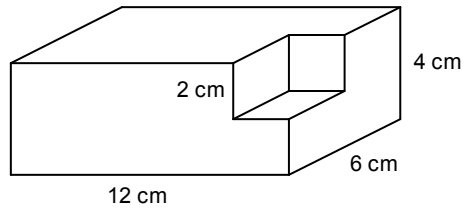
\_\_\_ 9. This object is made from 9 centimetre cubes. Determine its surface area.



\_\_\_ 10. This composite object is made of a 10-cm cube on top of a 20-cm cube. Determine its surface area.

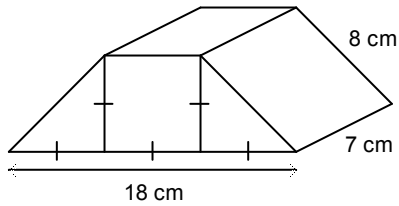


\_\_\_ 11. This object is made of a right rectangular prism of length 12 cm, width 6 cm, and height 4 cm. A cube of side length 2 cm has been removed from one corner. Determine the surface area of the object.



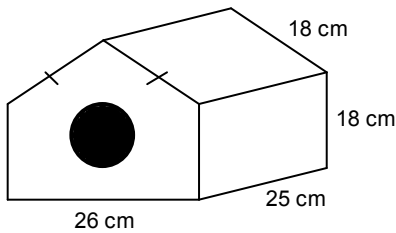
a.  $312 \text{ cm}^2$       b.  $264 \text{ cm}^2$       c.  $288 \text{ cm}^2$       d.  $280 \text{ cm}^2$

12. This object is composed of two right triangular prisms and a right rectangular prism. Determine the surface area of the object.



- a.  $298 \text{ cm}^2$       b.  $424 \text{ cm}^2$       c.  $568 \text{ cm}^2$       d.  $352 \text{ cm}^2$

13. This birdhouse is to be hung from the branch of a tree. The circular hole has diameter 8 cm. Determine the surface area of the birdhouse, to the nearest square centimetre.



- a.  $3009 \text{ cm}^2$       b.  $3760 \text{ cm}^2$       c.  $3609 \text{ cm}^2$       d.  $3659 \text{ cm}^2$

14. Each layer of a two-layer cake is a right rectangular prism. The bottom layer has a square base of side length 26 cm and height 8 cm. The top layer has a square base of side length 18 cm and height 6 cm. The surface of the cake is frosted. What area of the cake is frosted?

- a.  $2616 \text{ cm}^2$       b.  $2264 \text{ cm}^2$       c.  $1940 \text{ cm}^2$       d.  $2588 \text{ cm}^2$

15. Write the base of  $-(-5)^3$ .

- a.  $-5$       b.  $5$       c.  $-5 \times 3$       d.  $3$

16. Write  $7^5$  as repeated multiplication.

- a.  $5 \times 7$       c.  $7 \times 7 \times 7 \times 7 \times 7$   
 b.  $7 + 7 + 7 + 7 + 7$       d.  $7 \times 7 \times 7 \times 7 \times 7$

17. Evaluate:  $6^5$

- a.  $30$       b.  $7776$       c.  $15\,625$       d.  $11$

18. Which answer is negative?

- i)  $(-6)^6$   
 ii)  $-(6)^6$   
 iii)  $-(-6)^6$
- a. i and ii      b. ii and iii      c. i only      d. i and iii

- \_\_\_ 19. Evaluate:  $10^7$   
 a. 100 000 000      b. 10 000 000      c. 1 000 000      d. 70
- \_\_\_ 20. Write  $(5 \times 10^4) + (8 \times 10^1) + (9 \times 10^2) + (6 \times 10^0)$  in standard form.  
 a. 50 980      b. 50 986      c. 50 981      d. 5986
- \_\_\_ 21. Which number is the greatest?  
 i)  $(5 \times 10^3) + (6 \times 10^2) + (4 \times 10^1) + (7 \times 10^0)$   
 ii) 5645  
 iii)  $(5 \times 10^3) + (7 \times 10^2) + (8 \times 10^0)$   
 iv) 5780  
 a. iv      b. i      c. iii      d. ii
- \_\_\_ 22. Evaluate:  $4 - 6^2$   
 a. -8      b. 16      c. -32      d.
- \_\_\_ 23. Evaluate:  $2^3 - (-3)^3$   
 a. 15      b. -19      c. -3      d. 35
- \_\_\_ 24. Evaluate:  $(3 + 4)^2 - (2 - 4)^3$   
 a. -31      b. 57      c. 20      d. 41
- \_\_\_ 25. Write the quotient of  $\frac{6^{10}}{6^5}$  as a single power.  
 a.  $6^5$       b.  $6^{15}$       c.  $6^2$       d. 2
- \_\_\_ 26. Express  $\frac{(-5)^9 \times (-5)^6}{(-5)^3}$  as a single power.  
 a.  $(-5)^5$       b.  $(-5)^{51}$       c.  $(-5)^{12}$       d.  $(-5)^{18}$
- \_\_\_ 27. Evaluate:  $(-2)^5 \times (-2)^3 \div (-2)^0$   
 a. -128      b. -256      c. 256      d. -32 768
- \_\_\_ 28. Evaluate:  $10^2 \times 10^5 + 10^5$   
 a. 10 100 000      c. 120  
 b. 1 000 000 000 000      d. 10 000 100 000
- \_\_\_ 29. Write  $[(-4) \times (-5)]^3$  as a product of powers.  
 a.  $3(-4) + 3(-5)$       c.  $(-4)^3 + (-5)^3$   
 b.  $(-4)^3 \times (-5)^3$       d.  $4^3 \times 5^3$
- \_\_\_ 30. Evaluate:  $\left[(-5)^0\right]^3$   
 a. -3      b. -1      c. 3      d. 1

\_\_\_ 31. Which expressions have negative values?

i)  $\left[-(-4)^3\right]^3$

ii)  $\left(-4^3\right)^3$

iii)  $\left[(-4)^3\right]^3$

iv)  $- \left[(-4)^3\right]^3$

a. ii and iii

b. i and iv

c. i and ii

d. iii and iv

\_\_\_ 32. Which numbers are rational numbers?

$\frac{2}{11}$ , 3.6,  $0.8\bar{3}$ ,  $\frac{11}{2}$

a.  $\frac{2}{11}$  and 3.6

c. All of them

b.  $\frac{2}{11}$  and  $\frac{11}{2}$

d.  $\frac{2}{11}$ , 3.6, and  $\frac{11}{2}$

\_\_\_ 33. Identify the number that is NOT equal to the other three numbers.

$\frac{-5}{8}$ ,  $\frac{5}{-8}$ ,  $\frac{-5}{-8}$ ,  $\frac{-5}{8}$

a.  $\frac{5}{-8}$

b.  $\frac{-5}{-8}$

c.  $\frac{-5}{8}$

d.  $\frac{-5}{8}$

\_\_\_ 34. Identify equal rational numbers in this list:

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

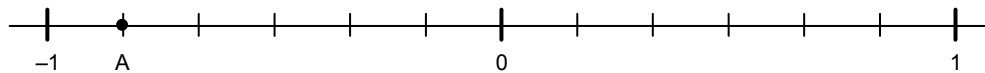
a.  $\frac{-4}{3}$  and  $\frac{3}{-4}$

c.  $\frac{-3}{4}$ ,  $\frac{-4}{3}$ , and  $\frac{-3}{4}$

b.  $\frac{-3}{4}$ ,  $\frac{3}{-4}$ , and  $\frac{-3}{4}$

d.  $\frac{-3}{-4}$  and  $\frac{-4}{3}$

\_\_\_ 35. Which rational number is represented by the letter A on the number line?



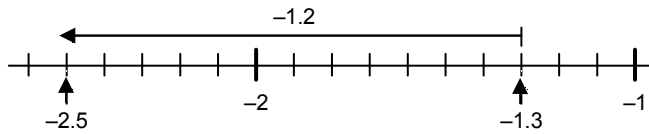
a. -0.5

c. -5

b. -0.8

d.  $-\frac{5}{6}$

\_\_\_ 36. 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.  $-1.3 + 2.5 = -1.2$

\_\_\_ 37. Which expression has the least sum?

- i)  $9.43 + 6.05$   
ii)  $-9.43 + 6.05$   
iii)  $9.43 + (-6.05)$   
iv)  $-9.43 + (-6.05)$   
a. ii                      b. i                      c. iii                      d. iv

\_\_\_ 38. Yesterday, the temperature of a freezer was  $-4.4^{\circ}\text{C}$ . When the technician checked the freezer today, its temperature had decreased by  $9.8^{\circ}\text{C}$ . Determine the temperature of the freezer today.

- a.  $-5.4^{\circ}\text{C}$                       b.  $5.4^{\circ}\text{C}$                       c.  $14.2^{\circ}\text{C}$                       d.  $-14.2^{\circ}\text{C}$

\_\_\_ 39. Which expressions have the same answer as  $-1\frac{2}{3} - (-5)$ ?

- i)  $5 + 1\frac{2}{3}$   
ii)  $-5 + 1\frac{2}{3}$   
iii)  $-1\frac{2}{3} + 5$   
iv)  $5 - 1\frac{2}{3}$   
a. iii and iv                      b. ii and iv                      c. i and ii                      d. i and iii

\_\_\_ 40. The temperature at the top of a mountain is  $10.5^{\circ}\text{C}$  less than the temperature at the base of the mountain. If the temperature at the base is  $-4.4^{\circ}\text{C}$ , what is the temperature at the top?

- a.  $6.1^{\circ}\text{C}$                       b.  $-14.9^{\circ}\text{C}$                       c.  $-6.1^{\circ}\text{C}$                       d.  $14.9^{\circ}\text{C}$

\_\_\_ 41. Determine this product.

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

- a.  $-\frac{11}{4}$                       b.  $-\frac{15}{8}$                       c.  $\frac{15}{8}$                       d.  $\frac{11}{4}$

\_\_\_ 42. The price of a share changed by  $-\$1.45$ . A person owns 190 shares. By how much did his shares change in value?

- a.  $-\$85.50$                       b.  $-\$275.50$                       c.  $+\$275.50$                       d.  $-\$131.03$

\_\_\_ 43. Which quotients are less than 0?

i)  $\left(\frac{-7}{8}\right) \div \left(\frac{9}{-8}\right)$

ii)  $\left(\frac{-7}{8}\right) \div \left(\frac{9}{8}\right)$

iii)  $\left(\frac{-7}{-8}\right) \div \left(\frac{-9}{8}\right)$

iv)  $\left(\frac{-7}{-8}\right) \div \left(\frac{-9}{-8}\right)$

a. ii and iii

b. i and iii

c. i and iv

d. ii and iv

\_\_\_ 44. Which operation would you do first to evaluate this expression?

$$8.8 - 1.6 \div 0.2 \times 2.2 + 3.7$$

a. Divide 1.6 by 0.2.

c. Add 3.7 to 2.2.

b. Subtract 1.6 from 8.8.

d. Multiply 0.2 by 2.2.

\_\_\_ 45. Evaluate.

$$\frac{5}{6} \div \left(\frac{4}{3} + \frac{1}{6}\right)$$

a.  $\frac{25}{54}$

b.  $\frac{8}{15}$

c.  $\frac{5}{9}$

d.  $\frac{19}{24}$

\_\_\_ 46. A pattern can be represented by the equation  $H = 6n - 1$ .

Which equations could represent the same pattern?

i)  $H = 6(n - 1) + 5$

ii)  $H = 5(n + 1) + n$

iii)  $H = 7n - (n + 1)$

iv)  $H = 5n - (1 - n)$

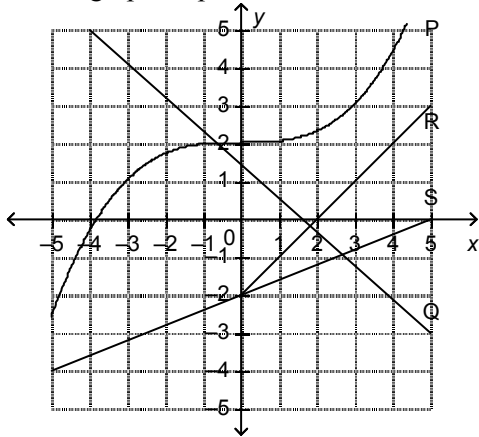
a. i, ii, and iii

b. i, iii, and iv

c. i, ii, and iv

d. All of these

\_\_\_ 47. Which graphs represent a linear relation?



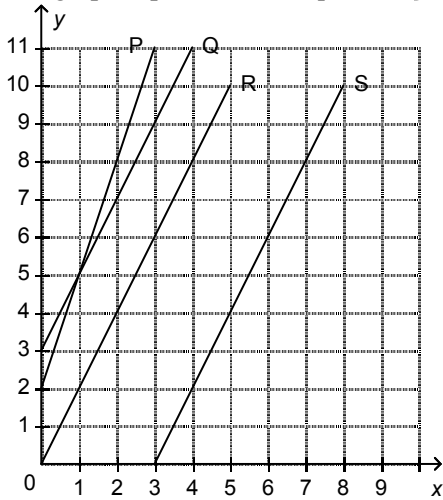
a. P and R

c. Q and S

b. Q, R, and S

d. Q and R

48. Which graph represents the equation  $y = 2x + 3$ ?



- a. Line S                      b. Line Q                      c. Line P                      d. Line R

49. Complete the table of values.

$$y = -x + 6$$

$x$	0	1	2	3
$y$				

a.

$x$	0	1	2	3
$y$	-6	-7	-8	-9

c.

$x$	0	1	2	3
$y$	6	5	4	3

b.

$x$	0	1	2	3
$y$	5	4	3	2

d.

$x$	0	1	2	3
$y$	0	-6	-12	-18

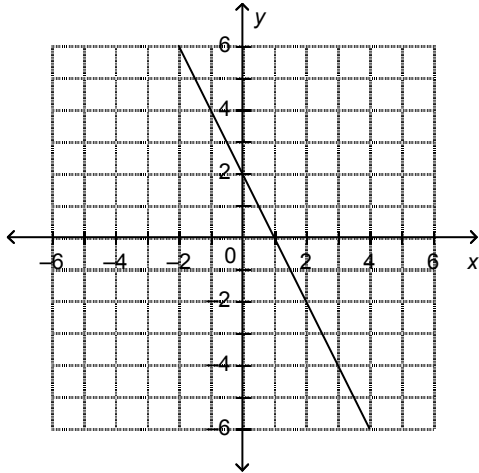
50. Sean cycles at an average speed of 5 m/s. He travels a distance,  $d$  metres, in  $t$  seconds. Write an equation that relates  $d$  and  $t$ .

- a.  $d = \frac{t}{5}$                       b.  $d = t + 5$                       c.  $d = 5t$                       d.  $t = 5d$

51. Which equation describes the graph below?

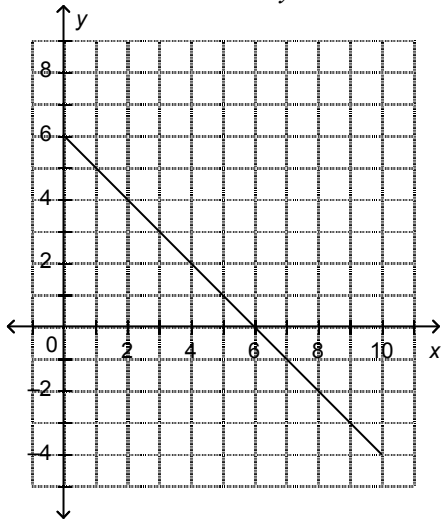
- i)  $y = 2x$   
 ii)  $y = 2x + 2$   
 iii)  $y = -x + 2$   
 iv)  $y = -2x + 2$





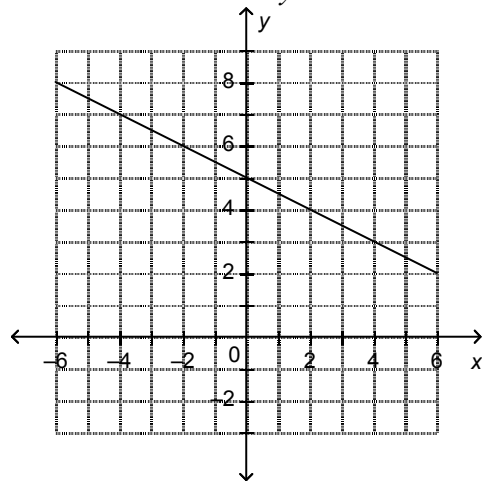
- a. iii                      b. ii                      c. iv                      d. i

52. This graph represents a linear relation. Determine the value of  $y$  when  $x = 4$ .



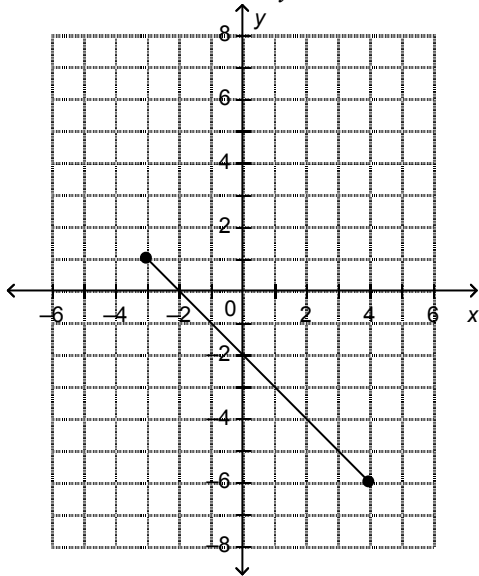
- a. 0                      b. 2                      c. 10                      d. 6

53. This graph represents a linear relation. Determine the value of  $y$  when  $x = 3$ .




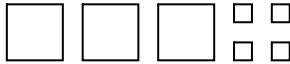




- a. 5                      b. 6.5                      c. 3.5                      d. 10

54. This graph represents a linear relation. Determine the value of  $y$  when  $x = -5$ .



- a. 7                      b. 3                      c. 1                      d. 2
55. A large white square represents an  $x^2$ -tile, a large black square represents a  $-x^2$ -tile, a small white square represents a 1-tile, and a small black square represents a  $-1$ -tile.

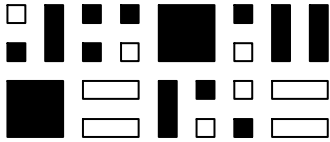
How would you model the polynomial  $-3x^2 - 4$  with algebra tiles?

- a.                       c. 
- b.                       d.   $3$    $+ 4$  

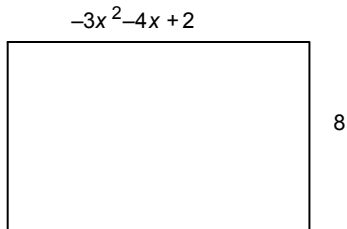
56. How many terms are in the polynomial  $10x^2 + 5x - 11$ ?  
 a. 10                      b. 1                      c. 11                      d. 3
57. Which of the following expressions are monomials with degree 2?  
 i)  $2x^2 + 2x$   
 ii)  $2x^2$   
 iii)  $x^2$   
 iv)  $2x$   
 a. ii and iii                      b. ii and iv                      c. iii and iv                      d. i and ii
58. What algebra tiles would you use to model the polynomial  $6 - 4x^2 + 4x$ ?  
 a.  $6 x^2$ -tiles,  $4 -x$ -tiles, and  $4$  1-tiles  
 b.  $2 x^2$ -tiles,  $4 x$ -tiles  
 c.  $4 -x^2$ -tiles,  $4 x$ -tiles, and  $6$  1-tiles  
 d.  $4 x^2$ -tiles,  $4 -x$ -tiles, and  $6 -1$ -tiles

- \_\_\_ 59. Combine like terms. Sketch algebra tiles if it helps.  
 $3x + 8 + 7x - 2$   
 a.  $10x + 6$       b.  $11x + 5$       c.  $16x$       d.  $10x - 6$
- \_\_\_ 60. Combine like terms. Sketch algebra tiles if it helps.  
 $9x^2 - 7x + 2x - 6x^2$   
 a.  $-2x^2$       b.  $3x^2 - 5x$       c.  $2x^2 - 4x$       d.  $3x^2 + 5x$
- \_\_\_ 61. A large white square represents an  $x^2$ -tile, a large black square represents a  $-x^2$ -tile, a white rectangle represents an  $x$ -tile, a black rectangle represents a  $-x$ -tile, a small white square represents a 1-tile, and a small black square represents a  $-1$ -tile.

Write the simplified polynomial.

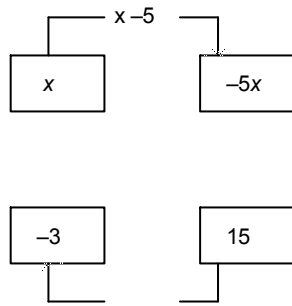


- a.  $2x^2 + 2$       c.  $2x^2 + x + 2$   
 b.  $-2x^2 + x - 2$       d.  $-2x^2 - 2$
- \_\_\_ 62. From the list, which terms are like  $5x$ ?  
 $5x^2, 4x, 3, -8x, -5x, 9x^2, 5$   
 a.  $-5x$       c.  $4x, -8x, -5x$   
 b.  $5x^2, 5$       d.  $5x^2, -5x, -5x^2$
- \_\_\_ 63. Add:  $(3x^2 - 4x + 8) + (-x^2 - 2x - 8)$   
 a.  $2x^2 - 6x$       b.  $2x^2 - 2x$       c.  $2x^2 - 6x + 1$       d.  $2x^2 + 6x$
- \_\_\_ 64. Multiply:  $6(3x^2 - 4x)$   
 a.  $9x^2 - 2x$       b.  $18x^2 - 24x$       c.  $18x^2 - 4x$       d.  $18x^2 + 2x$
- \_\_\_ 65. Determine the area of this rectangle.



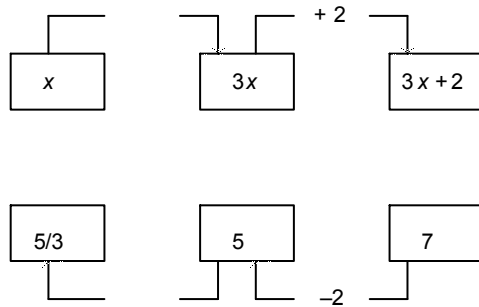
- a.  $-11x^2 - 4x + 2$       c.  $-11x^2 - 12x - 6$   
 b.  $24x^2 - 4x + 2$       d.  $-24x^2 - 32x + 16$
- \_\_\_ 66. Multiply:  $(5y - 7)(-y)$   
 a.  $-5y^2 + 7y$       b.  $4y^2 - 7$       c.  $-5y^2 - 7$       d.  $4y^2 + 7y$

\_\_\_ 67. What is the missing value in this arrow diagram?



- a.  $\div 5$                       b.  $\div -5$                       c.  $\times 5$                       d.  $\times -5$

\_\_\_ 68. What are the missing values in this arrow diagram?



- a.  $\div 3; \div 3$                       b.  $\times 3; \times 3$                       c.  $\div 3; \times 3$                       d.  $\times 3; \div 3$

\_\_\_ 69. Solve:  $4x + 2.8 = 7.2$

- a. 0.4                      b. -1                      c. 6.5                      d. 1.1

\_\_\_ 70. Solve:  $8 = 5 + \frac{x}{3}$

- a. -7                      b. 19                      c. 0                      d. 9

\_\_\_ 71. Solve:  $4v - 6 = -14$

- a.  $v = -\frac{1}{2}$                       b.  $v = 2$                       c.  $v = -2$                       d.  $v = -2$

\_\_\_ 72. Solve:  $1.2b + 2.6 = 10.1 - 1.3b$

- a.  $b = 0.3$                       b.  $b = 3$                       c.  $b = -3$                       d.  $b = -0.3$

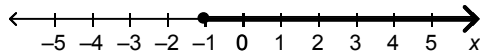
\_\_\_ 73. Solve:  $\frac{x}{4} + \frac{11}{2} = \frac{7}{4}$

- a.  $x = -4$                       b.  $x = -60$                       c.  $x = -8$                       d.  $x = -15$

\_\_\_ 74. Use a symbol to write an inequality that corresponds to this statement:  $w$  is greater than  $-6$

- a.  $w \geq 6$                       b.  $w > 6$                       c.  $w > -6$                       d.  $w \geq -6$

75. Write the inequality whose solution is graphed on the number line.



- a.  $x \geq 1$                       b.  $x > -1$                       c.  $x \geq -1$                       d.  $x > 1$

76. Which of these inequalities has 7 as a solution?

- i)  $c + 3 > 10$   
ii)  $d + 2 \geq 9$   
iii)  $e - 3 < 4$   
iv)  $f - 4 \leq 3$

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

77. Which of these inequalities has -4 as a solution?

- i)  $p + 1 \leq -2$   
ii)  $q + 2 > -2$   
iii)  $r - 1 < -4$   
iv)  $s - 4 \geq -4$

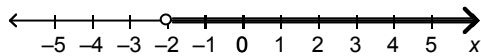
- a. ii and iv                      b. i and ii                      c. i and iii                      d. i and iv

78. Solve:  $12t - 8 < 16 + 13t$

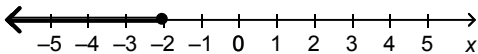
- a.  $t > -24$                       b.  $t < -3$                       c.  $t < -24$                       d.  $t > 8$

79. Which of these graphs represent the solution of the inequality  $5x \geq -10$ ?

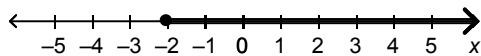
i)



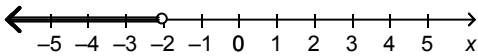
ii)



iii)



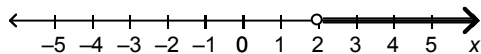
iv)



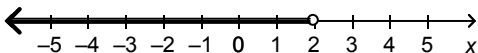
- a. Graph iii                      b. Graph iv                      c. Graph ii                      d. Graph i

80. Which of these graphs represent the solution of the inequality  $9 - 2x < 7$ ?

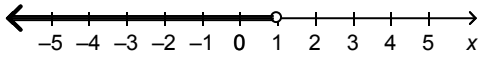
i)



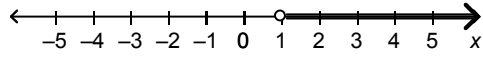
ii)



iii)



iv)



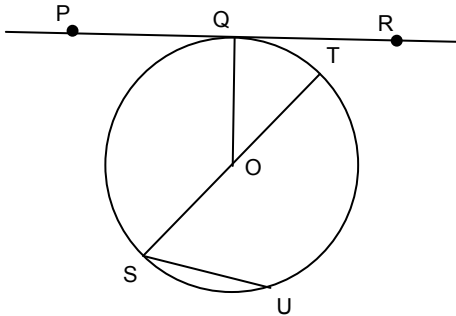
- a. Graph iii      b. Graph ii      c. Graph iv      d. Graph i

81. Which of these numbers are solutions of the inequality  $11 > 3 - 2w$ ?

-4, -3, -5, -2

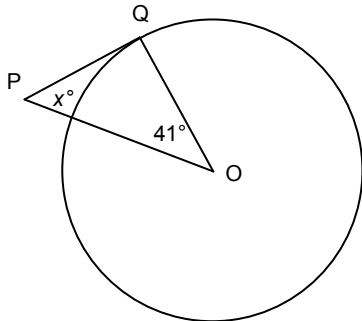
- a. -3, -2      b. -4, -3, -2      c. -3, -5      d. -4, -5

82. O is the centre of this circle.  
Which line is a tangent?



- a. OQ      b. ST      c. PR      d. SU

83. O is the centre of this circle and point Q is a point of tangency.  
Determine the value of  $x^\circ$ .



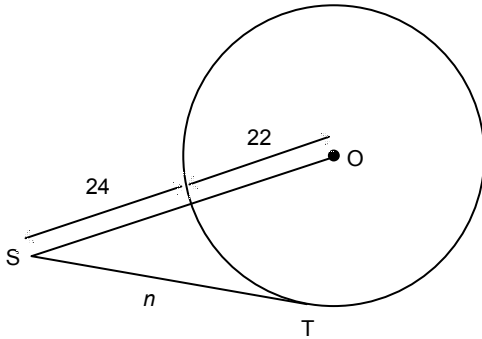
- a.  $139^\circ$       b.  $49^\circ$       c.  $41^\circ$       d.  $90^\circ$





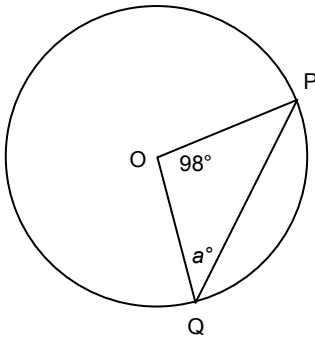


88. O is the centre of this circle and point T is a point of tangency. Determine the value of  $n$ . If necessary, give your answer to the nearest tenth.



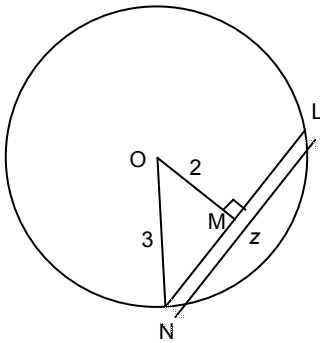
- a. 5.7                      b. 51                      c. 24                      d. 40.4

89. O is the centre of the circle. Determine the value of  $a^\circ$ .



- a.  $49^\circ$                       b.  $20.5^\circ$                       c.  $41^\circ$                       d.  $69.5^\circ$

90. O is the centre of the circle. Determine the value of  $z$  to the nearest tenth, if necessary.



- a. 4.5                      b. 3.6                      c. 5                      d. 1



- \_\_\_ 96. Alec decided to survey all the library patrons in his city to see how often they downloaded e-books from the library's Web site.  
Which of the following might be a problem with his survey?
- i) Timing
  - ii) Bias
  - iii) Ethics
  - iv) Cost
- a. iv                                      b. iii                                      c. i                                      d. ii
- \_\_\_ 97. A cosmetics company wants to determine which eye shadow colours are preferred by the readers of a certain fashion magazine. What is the population they are interested in surveying?
- i) People who purchase the magazine
  - ii) People who wear eye shadow
  - iii) People who read the magazine
  - iv) Fashion experts featured in the magazine
- a. i                                      b. ii                                      c. iv                                      d. iii
- \_\_\_ 98. To determine the favourite TV shows of grade 9 students at a school, which of the following data collection methods would provide the most accurate information?
- i) Survey a sample of students in one grade 9 class
  - ii) Survey all students in one grade 9 class
  - iii) Survey a sample of students from each grade 9 class
  - iv) Survey all students in each grade 9 class
- a. iv                                      b. ii                                      c. i                                      d. iii
- \_\_\_ 99. A specialty craft store wants to know if customers are satisfied with the product selection.  
To find out, they interview every 20th person leaving the store for 1 week.  
Which sampling method does the store use?
- a. Simple random sampling
  - b. Systematic sampling
  - c. Cluster sampling
  - d. Self-selected sampling
- \_\_\_ 100. The administrator of a dance and fitness studio wants to know if there is interest in having more evening classes available. He surveys everyone who participates in yoga classes to see what they think. Which sampling method does he use?
- a. Self-selected sampling
  - b. Stratified random sampling
  - c. Simple random sampling
  - d. Cluster sampling

## Final Review Answer Section

### MULTIPLE CHOICE

1. ANS: C                   PTS: 1                   DIF: Easy                   REF: 1.1 Square Roots of Perfect Squares  
LOC: 9.N5                TOP: Number               KEY: Conceptual Understanding
2. ANS: A                   PTS: 1                   DIF: Easy                   REF: 1.1 Square Roots of Perfect Squares  
LOC: 9.N5                TOP: Number               KEY: Procedural Knowledge
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: Conceptual Understanding
5. ANS: B                   PTS: 1                   DIF: Moderate  
REF: 1.2 Square Roots of Non-Perfect Squares                   LOC: 9.N6  
TOP: Number               KEY: Procedural Knowledge
6. ANS: B                   PTS: 1                   DIF: Moderate  
REF: 1.2 Square Roots of Non-Perfect Squares                   LOC: 9.N6  
TOP: Number               KEY: Procedural Knowledge
7. ANS: D                   PTS: 1                   DIF: Easy  
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
8. ANS: C                   PTS: 1                   DIF: Easy  
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
9. ANS: A                   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
10. ANS: A                   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
11. ANS: C                   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
12. 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
13. ANS: D                   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 | Problem-Solving Skills
14. ANS: C                   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 | Problem-Solving Skills
  15. ANS: A                   PTS: 1                   DIF: Easy                   REF: 2.1 What Is a Power?  
LOC: 9.N1                   TOP: Number                   KEY: Conceptual Understanding
  16. ANS: C                   PTS: 1                   DIF: Easy                   REF: 2.1 What Is a Power?  
LOC: 9.N1                   TOP: Number                   KEY: Procedural Knowledge
  17. ANS: B                   PTS: 1                   DIF: Moderate                   REF: 2.1 What Is a Power?  
LOC: 9.N1                   TOP: Number                   KEY: Procedural Knowledge
  18. ANS: B                   PTS: 1                   DIF: Moderate                   REF: 2.1 What Is a Power?  
LOC: 9.N1                   TOP: Number                   KEY: Conceptual Understanding
  19. ANS: B                   PTS: 1                   DIF: Easy  
REF: 2.2 Powers of Ten and the Zero Exponent                   LOC: 9.N1  
TOP: Number                   KEY: Procedural Knowledge
  20. ANS: B                   PTS: 1                   DIF: Moderate  
REF: 2.2 Powers of Ten and the Zero Exponent                   LOC: 9.N1  
TOP: Number                   KEY: Procedural Knowledge
  21. ANS: A                   PTS: 1                   DIF: Moderate  
REF: 2.2 Powers of Ten and the Zero Exponent                   LOC: 9.N1  
TOP: Number                   KEY: Procedural Knowledge
  22. ANS: C                   PTS: 1                   DIF: Easy  
REF: 2.3 Order of Operations with Powers                   LOC: 9.N1  
TOP: Number                   KEY: Procedural Knowledge
  23. ANS: D                   PTS: 1                   DIF: Moderate  
REF: 2.3 Order of Operations with Powers                   LOC: 9.N1  
TOP: Number                   KEY: Procedural Knowledge
  24. ANS: B                   PTS: 1                   DIF: Moderate  
REF: 2.3 Order of Operations with Powers                   LOC: 9.N1  
TOP: Number                   KEY: Procedural Knowledge
  25. ANS: A                   PTS: 1                   DIF: Easy                   REF: 2.4 Exponent Laws I  
LOC: 9.N2                   TOP: Number                   KEY: Procedural Knowledge
  26. ANS: C                   PTS: 1                   DIF: Moderate                   REF: 2.4 Exponent Laws I  
LOC: 9.N2                   TOP: Number                   KEY: Procedural Knowledge
  27. ANS: C                   PTS: 1                   DIF: Moderate                   REF: 2.4 Exponent Laws I  
LOC: 9.N2                   TOP: Number                   KEY: Procedural Knowledge
  28. ANS: A                   PTS: 1                   DIF: Moderate                   REF: 2.4 Exponent Laws I  
LOC: 9.N2                   TOP: Number                   KEY: Procedural Knowledge
  29. ANS: B                   PTS: 1                   DIF: Easy                   REF: 2.5 Exponent Laws II  
LOC: 9.N2                   TOP: Number                   KEY: Procedural Knowledge
  30. ANS: D                   PTS: 1                   DIF: Moderate                   REF: 2.5 Exponent Laws II  
LOC: 9.N2                   TOP: Number                   KEY: Procedural Knowledge
  31. ANS: A                   PTS: 1                   DIF: Moderate                   REF: 2.5 Exponent Laws II  
LOC: 9.N2                   TOP: Number                   KEY: Conceptual Understanding
  32. ANS: C                   PTS: 1                   DIF: Easy                   REF: 3.1 What Is a Rational Number?  
LOC: 9.N3                   TOP: Number                   KEY: Conceptual Understanding
  33. ANS: B                   PTS: 1                   DIF: Easy                   REF: 3.1 What Is a Rational Number?  
LOC: 9.N3                   TOP: Number                   KEY: Conceptual Understanding

34. ANS: B                   PTS: 1                   DIF: Easy                   REF: 3.1 What Is a Rational Number?  
 LOC: 9.N3                   TOP: Number                   KEY: Conceptual Understanding
35. ANS: D                   PTS: 1                   DIF: Easy                   REF: 3.1 What Is a Rational Number?  
 LOC: 9.N3                   TOP: Number                   KEY: Conceptual Understanding
36. ANS: C                   PTS: 1                   DIF: Easy                   REF: 3.2 Adding Rational Numbers  
 LOC: 9.N3                   TOP: Number                   KEY: Conceptual Understanding
37. ANS: D                   PTS: 1                   DIF: Moderate                   REF: 3.2 Adding Rational Numbers  
 LOC: 9.N3                   TOP: Number                   KEY: Conceptual Understanding
38. ANS: D                   PTS: 1                   DIF: Moderate                   REF: 3.2 Adding Rational Numbers  
 LOC: 9.N3                   TOP: Number                   KEY: Problem-Solving Skills
39. ANS: A                   PTS: 1                   DIF: Easy                   REF: 3.3 Subtracting Rational Numbers  
 LOC: 9.N3                   TOP: Number                   KEY: Conceptual Understanding
40. ANS: B                   PTS: 1                   DIF: Moderate                   REF: 3.3 Subtracting Rational Numbers  
 LOC: 9.N3                   TOP: Number                   KEY: Procedural Knowledge | Problem-Solving Skills
41. ANS: C                   PTS: 1                   DIF: Moderate                   REF: 3.4 Multiplying Rational Numbers  
 LOC: 9.N3                   TOP: Number                   KEY: Procedural Knowledge
42. ANS: B                   PTS: 1                   DIF: Moderate                   REF: 3.4 Multiplying Rational Numbers  
 LOC: 9.N3                   TOP: Number                   KEY: Problem-Solving Skills
43. ANS: A                   PTS: 1                   DIF: Easy                   REF: 3.5 Dividing Rational Numbers  
 LOC: 9.N3                   TOP: Number                   KEY: Conceptual Understanding
44. ANS: A                   PTS: 1                   DIF: Easy  
 REF: 3.6 Order of Operations with Rational Numbers                   LOC: 9.N4  
 TOP: Number                   KEY: Conceptual Understanding
45. ANS: C                   PTS: 1                   DIF: Moderate  
 REF: 3.6 Order of Operations with Rational Numbers                   LOC: 9.N4  
 TOP: Number                   KEY: Procedural Knowledge
46. ANS: B                   PTS: 1                   DIF: Moderate  
 REF: 4.1 Writing Equations to Describe Patterns                   LOC: 9.PR1  
 TOP: Patterns and Relations (Patterns)                   KEY: Conceptual Understanding
47. ANS: B                   PTS: 1                   DIF: Easy                   REF: 4.2 Linear Relations  
 LOC: 9.PR2                   TOP: Patterns and Relations (Patterns)                   KEY: Conceptual Understanding
48. ANS: B                   PTS: 1                   DIF: Moderate                   REF: 4.2 Linear Relations  
 LOC: 9.PR2                   TOP: Patterns and Relations (Patterns)                   KEY: Procedural Knowledge
49. ANS: C                   PTS: 1                   DIF: Moderate                   REF: 4.2 Linear Relations  
 LOC: 9.PR2                   TOP: Patterns and Relations (Patterns)                   KEY: Procedural Knowledge
50. ANS: C                   PTS: 1                   DIF: Moderate                   REF: 4.2 Linear Relations  
 LOC: 9.PR2                   TOP: Patterns and Relations (Patterns)                   KEY: Conceptual Understanding
51. ANS: C                   PTS: 1                   DIF: Moderate                   REF: 4.4 Matching Equations and Graphs  
 LOC: 9.PR2                   TOP: Patterns and Relations (Patterns)                   KEY: Procedural Knowledge
52. ANS: B                   PTS: 1                   DIF: Easy  
 REF: 4.5 Using Graphs to Estimate Values                   LOC: 9.PR2  
 TOP: Patterns and Relations (Patterns)                   KEY: Procedural Knowledge
53. ANS: C                   PTS: 1                   DIF: Easy  
 REF: 4.5 Using Graphs to Estimate Values                   LOC: 9.PR2  
 TOP: Patterns and Relations (Patterns)                   KEY: Procedural Knowledge
54. ANS: B                   PTS: 1                   DIF: Moderate  
 REF: 4.5 Using Graphs to Estimate Values                   LOC: 9.PR2  
 TOP: Patterns and Relations (Patterns)                   KEY: Procedural Knowledge
55. ANS: B                   PTS: 1                   DIF: Easy                   REF: 5.1 Modelling Polynomials

- LOC: 9.PR5            TOP: Patterns and Relations (Variables and Equations)  
KEY: Conceptual Understanding
56. ANS: D            PTS: 1            DIF: Easy            REF: 5.1 Modelling Polynomials  
LOC: 9.PR5            TOP: Patterns and Relations (Variables and Equations)  
KEY: Conceptual Understanding
57. ANS: A            PTS: 1            DIF: Easy            REF: 5.1 Modelling Polynomials  
LOC: 9.PR5            TOP: Patterns and Relations (Variables and Equations)  
KEY: Conceptual Understanding
58. ANS: C            PTS: 1            DIF: Moderate       REF: 5.1 Modelling Polynomials  
LOC: 9.PR5            TOP: Patterns and Relations (Variables and Equations)  
KEY: Conceptual Understanding
59. ANS: A            PTS: 1            DIF: Easy            REF: 5.2 Like Terms and Unlike Terms  
LOC: 9.PR5            TOP: Patterns and Relations (Variables and Equations)  
KEY: Procedural Knowledge
60. ANS: B            PTS: 1            DIF: Easy            REF: 5.2 Like Terms and Unlike Terms  
LOC: 9.PR5            TOP: Patterns and Relations (Variables and Equations)  
KEY: Procedural Knowledge
61. ANS: D            PTS: 1            DIF: Moderate       REF: 5.2 Like Terms and Unlike Terms  
LOC: 9.PR5            TOP: Patterns and Relations (Variables and Equations)  
KEY: Procedural Knowledge
62. 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
63. ANS: A            PTS: 1            DIF: Moderate       REF: 5.3 Adding Polynomials  
LOC: 9.PR6            TOP: Patterns and Relations (Variables and Equations)  
KEY: Procedural Knowledge
64. ANS: B            PTS: 1            DIF: Moderate  
REF: 5.5 Multiplying and Dividing a Polynomial by a Constant  
LOC: 9.PR7            TOP: Patterns and Relations (Variables and Equations)  
KEY: Procedural Knowledge
65. ANS: D            PTS: 1            DIF: Moderate  
REF: 5.5 Multiplying and Dividing a Polynomial by a Constant  
LOC: 9.PR7            TOP: Patterns and Relations (Variables and Equations)  
KEY: Procedural Knowledge
66. ANS: A            PTS: 1            DIF: Moderate  
REF: 5.6 Multiplying and Dividing a Polynomial by a Monomial  
LOC: 9.PR7            TOP: Patterns and Relations (Variables and Equations)  
KEY: Procedural Knowledge
67. ANS: B            PTS: 1            DIF: Easy  
REF: 6.1 Solving Equations by Using Inverse Operations        LOC: 9.PR3  
TOP: Patterns and Relations (Variables and Equations)        KEY: Procedural Knowledge
68. ANS: D            PTS: 1            DIF: Easy  
REF: 6.1 Solving Equations by Using Inverse Operations        LOC: 9.PR3  
TOP: Patterns and Relations (Variables and Equations)        KEY: Procedural Knowledge
69. ANS: D            PTS: 1            DIF: Easy  
REF: 6.1 Solving Equations by Using Inverse Operations        LOC: 9.PR3  
TOP: Patterns and Relations (Variables and Equations)        KEY: Procedural Knowledge
70. ANS: D            PTS: 1            DIF: Easy  
REF: 6.1 Solving Equations by Using Inverse Operations        LOC: 9.PR3

- TOP: Patterns and Relations (Variables and Equations) KEY: Procedural Knowledge
71. 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
72. ANS: B PTS: 1 DIF: Moderate  
REF: 6.2 Solving Equations by Using Balance Strategies LOC: 9.PR3  
TOP: Patterns and Relations (Variables and Equations) KEY: Procedural Knowledge
73. ANS: D PTS: 1 DIF: Difficult  
REF: 6.2 Solving Equations by Using Balance Strategies LOC: 9.PR3  
TOP: Patterns and Relations (Variables and Equations) KEY: Procedural Knowledge
74. ANS: C PTS: 1 DIF: Easy  
REF: 6.3 Introduction to Linear Inequalities LOC: 9.PR4  
TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding
75. ANS: C PTS: 1 DIF: Easy  
REF: 6.3 Introduction to Linear Inequalities LOC: 9.PR4  
TOP: Patterns and Relations (Variables and Equations) KEY: Procedural Knowledge
76. ANS: C PTS: 1 DIF: Easy  
REF: 6.4 Solving Linear Inequalities by Using Addition and Subtraction  
LOC: 9.PR4 TOP: Patterns and Relations (Variables and Equations)  
KEY: Procedural Knowledge
77. ANS: C PTS: 1 DIF: Easy  
REF: 6.4 Solving Linear Inequalities by Using Addition and Subtraction  
LOC: 9.PR4 TOP: Patterns and Relations (Variables and Equations)  
KEY: Procedural Knowledge
78. ANS: A 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
79. ANS: A PTS: 1 DIF: Easy  
REF: 6.5 Solving Linear Inequalities by Using Multiplication and Division  
LOC: 9.PR4 TOP: Patterns and Relations (Variables and Equations)  
KEY: Procedural Knowledge
80. ANS: C PTS: 1 DIF: Easy  
REF: 6.5 Solving Linear Inequalities by Using Multiplication and Division  
LOC: 9.PR4 TOP: Patterns and Relations (Variables and Equations)  
KEY: Procedural Knowledge
81. ANS: A PTS: 1 DIF: Easy  
REF: 6.5 Solving Linear Inequalities by Using Multiplication and Division  
LOC: 9.PR4 TOP: Patterns and Relations (Variables and Equations)  
KEY: Procedural Knowledge
82. ANS: C PTS: 1 DIF: Easy  
REF: 8.1 Properties of Tangents to a Circle LOC: 9.SS1  
TOP: Shape and Space (Measurement) KEY: Conceptual Understanding
83. 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
84. ANS: D PTS: 1 DIF: Easy  
REF: 8.1 Properties of Tangents to a Circle LOC: 9.SS1  
TOP: Shape and Space (Measurement) KEY: Conceptual Understanding



85. ANS: C                   PTS: 1                   DIF: Easy  
REF: 8.1 Properties of Tangents to a Circle                   LOC: 9.SS1  
TOP: Shape and Space (Measurement)   KEY: Conceptual Understanding
86. 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
87. ANS: D                   PTS: 1                   DIF: Moderate  
REF: 8.1 Properties of Tangents to a Circle                   LOC: 9.SS1  
TOP: Shape and Space (Measurement)   KEY: Conceptual Understanding
88. ANS: D                   PTS: 1                   DIF: Moderate  
REF: 8.1 Properties of Tangents to a Circle                   LOC: 9.SS1  
TOP: Shape and Space (Measurement)   KEY: Conceptual Understanding
89. ANS: C                   PTS: 1                   DIF: Easy                   REF: 8.2 Properties of Chords in a Circle  
LOC: 9.SS1                   TOP: Shape and Space (Measurement)   KEY: Conceptual Understanding
90. ANS: A                   PTS: 1                   DIF: Easy                   REF: 8.2 Properties of Chords in a Circle  
LOC: 9.SS1                   TOP: Shape and Space (Measurement)   KEY: Conceptual Understanding
91. ANS: B                   PTS: 1                   DIF: Easy                   REF: 8.3 Properties of Angles in a Circle  
LOC: 9.SS1                   TOP: Shape and Space (Measurement)   KEY: Conceptual Understanding
92. ANS: D                   PTS: 1                   DIF: Easy                   REF: 9.1 Probability in Society  
LOC: 9.SP4                   TOP: Statistics and Probability (Chance and Uncertainty)  
KEY: Conceptual Understanding
93. 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
94. ANS: A                   PTS: 1                   DIF: Easy  
REF: 9.2 Potential Problems with Collecting Data                   LOC: 9.SP1  
TOP: Statistics and Probability (Data Analysis)                   KEY: Conceptual Understanding
95. ANS: C                   PTS: 1                   DIF: Easy  
REF: 9.2 Potential Problems with Collecting Data                   LOC: 9.SP1  
TOP: Statistics and Probability (Data Analysis)                   KEY: Conceptual Understanding
96. ANS: A                   PTS: 1                   DIF: Easy  
REF: 9.2 Potential Problems with Collecting Data                   LOC: 9.SP1  
TOP: Statistics and Probability (Data Analysis)                   KEY: Conceptual Understanding
97. 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
98. 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
99. ANS: B                   PTS: 1                   DIF: Easy                   REF: 9.4 Selecting a Sample  
LOC: 9.SP2                   TOP: Statistics and Probability (Data Analysis)  
KEY: Conceptual Understanding
100. ANS: D                   PTS: 1                   DIF: Easy                   REF: 9.4 Selecting a Sample  
LOC: 9.SP2                   TOP: Statistics and Probability (Data Analysis)  
KEY: Conceptual Understanding