

Post-Course Test

For use after Chapter 13

Evaluate the expression when $x = 3$, $y = 5$, and $z = 6$.

1. $3x - y$ 2. $(y + z)^2 - x$ 3. $\frac{2z - x}{3}$

Find the sum, difference, product, or quotient.

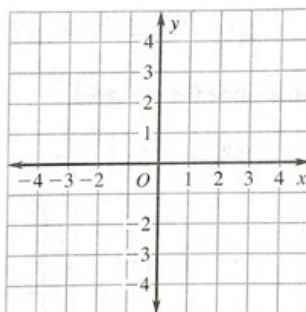
4. $42 + (-19)$ 5. $-28 - 41$ 6. $-16 - (-35)$
 7. $14(-6)$ 8. $\frac{-36}{-4}$ 9. $\frac{296}{-8}$

State the absolute value and the opposite of the number.

10. -25 11. 9 12. 87 13. -33

Plot the point in the coordinate plane. Describe the location of the point.

14. $A(-2, 3)$
 15. $B(1, 3)$
 16. $C(-4, -3)$
 17. $D(3, -1)$



Identify the property that the statement illustrates.

18. $c + 0 = c$ 19. $f(gh) = (fg)h$ 20. $x + y = y + x$

Evaluate the expression using the distributive property and mental math.

21. $5(34)$ 22. $3(84)$ 23. $8(7.3)$ 24. $9(6.2)$

Simplify the expression.

25. $26 + 3x - 19 + 24x$
 26. $-6(3t - 2) + 28$
 27. $7b + 4b + 17b$

Write the verbal sentence as an equation. Then tell whether 7 is a solution of the equation.

28. The difference of 14 and y is 21.
 29. The product of z and -6 is -42 .

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
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7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. See left.
15. See left.
16. See left.
17. See left.
18. _____
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29. _____

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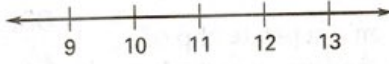
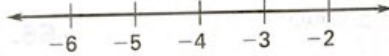
For use after Chapter 13

Continued

Solve the equation.

30. $8n = -104$ 31. $h - 41 = -6$ 32. $-\frac{t}{5} = 15$
 33. $-3p - 7 = 5$ 34. $4(3 - 2x) = -44$ 35. $-8 = 8(4g + 3)$

Solve the inequality. Graph your solution.

36. $x - 6 \geq 5$ 
37. $-4b - 3 \leq 13$ 

Find the greatest common factor of the monomials.

38. $6x, 9x$ 39. $5t, 15t^2$ 40. $7x^3z^4, 34x^5z^2$

Find the least common multiple of the monomials.

41. $8t, 24t$ 42. $6x, 12x^3$ 43. $24r^3s^2, 15r^2s^6$

Find the product or quotient. Write your answer using only positive exponents.

44. $u^4 \cdot u^9$ 45. $x^3 \cdot x^{-4}$ 46. $\frac{p^7}{p^2}$ 47. $\frac{t^{-6}}{t^3}$

Find the sum, difference, product, or quotient.

48. $\frac{5}{7} + \left(-\frac{6}{7}\right)$ 49. $5\frac{3}{4} - 2\frac{2}{3}$
 50. $-1\frac{1}{5} \cdot \left(6\frac{1}{2}\right)$ 51. $-8\frac{1}{3} \div \left(-4\frac{1}{6}\right)$

Solve the equation or inequality by first clearing the fractions or the decimals.

52. $\frac{1}{3}x - 4 < \frac{5}{6}$ 53. $-\frac{3}{8}x + \frac{1}{4} \geq \frac{7}{12}$
 54. $4.2x + 3.5 = 16.1$ 55. $8.5x - 6.97 = 38.08$

Solve the proportion.

56. $\frac{7}{12} = \frac{49}{w}$ 57. $\frac{96}{b} = \frac{48}{51}$ 58. $\frac{9.2}{x} = \frac{2.3}{16}$

Answers

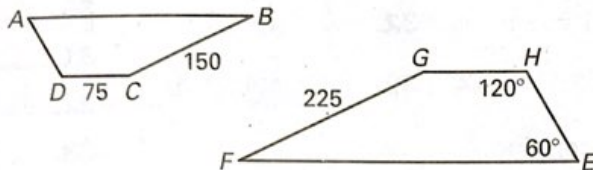
30. _____
 31. _____
 32. _____
 33. _____
 34. _____
 35. _____
 36. _____
 See left.
 37. _____
 See left.
 38. _____
 39. _____
 40. _____
 41. _____
 42. _____
 43. _____
 44. _____
 45. _____
 46. _____
 47. _____
 48. _____
 49. _____
 50. _____
 51. _____
 52. _____
 53. _____
 54. _____
 55. _____
 56. _____
 57. _____
 58. _____

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Given $ABCD \sim EFGH$, find the indicated measure.

- 59. $m\angle A$
- 60. $m\angle D$
- 61. GH



- 62. Each letter in the word VACATION is written on a separate slip of paper and placed in a hat. A letter is chosen at random from the hat. What is the probability that the chosen letter is a vowel?

Use a proportion or a percent equation to answer the question.

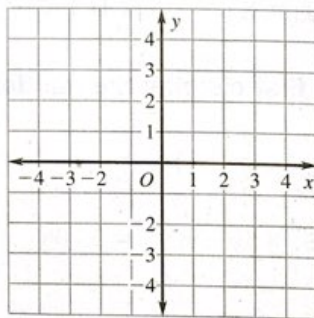
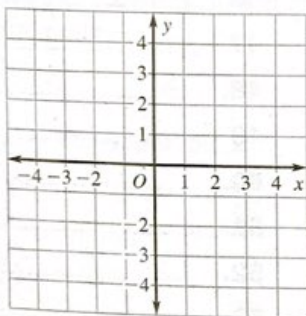
- 63. What percent of 360 is 126?
- 64. 18.75 is 12.5% of what number?

Identify the percent change as an *increase* or a *decrease*. Then find the percent of change.

- 65. Original: 24 66. Original: 80 67. Original: 64
New: 36 New: 60 New: 112
- 68. A spring sweater is on sale for 15% off the original price of \$35. What is the sale price of the sweater?

Graph the equation. Then tell whether the equation is a function.

- 69. $x = -3$
- 70. $y = -3x + 2$

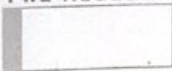


Write an equation of a line through the given points.

- 71. (5, 10), (8, 19)
- 72. (-1, 10), (0, 3)
- 73. (-15, -3), (-12, -2)
- 74. (-4, -4), (4, -14)

Answers

- 59. _____
- 60. _____
- 61. _____
- 62. _____
- 63. _____
- 64. _____
- 65. _____
- 66. _____
- 67. _____
- 68. _____
- 69. See left.
- 70. See left.
- 71. _____
- 72. _____
- 73. _____
- 74. _____



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Let $f(x) = 5x + 4$ and $g(x) = -2x + 1$. Find the indicated value.

75. $f(-2)$

76. $g(4)$

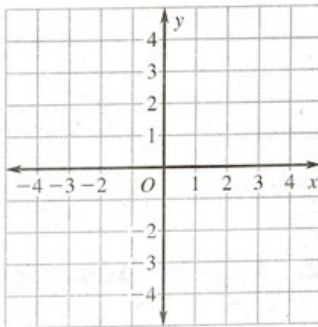
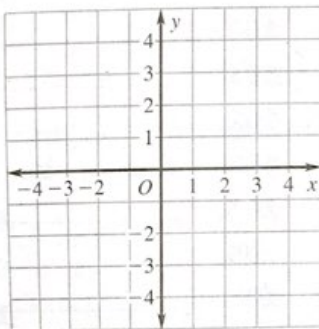
77. $f(6) + g(-8)$

78. x when $g(x) = 5$

Graph the inequality in a coordinate plane.

79. $y > -1$

80. $y \leq -x - 2$



Simplify the expression.

81. $\sqrt{72}$

82. $\sqrt{\frac{18}{49}}$

83. $\sqrt{50b^2}$

84. $\sqrt{\frac{9r^2}{121}}$

Determine whether the triangle with the given side lengths is a right triangle.

85. 9, 12, 15

86. 5, 12, 16

87. 9, 40, 41

88. 5, 6, 7

Find the midpoint of the segment with the given endpoints. Then find the distance between the points. Write your answer in simplest form.

89. (4, 5), (0, 7)

90. (3, 6), (-4, -2)

91. (0, -8), (2, 6)

92. The shortest leg of a 30° - 60° - 90° triangle has a length of 6. Find the length of the other leg and the hypotenuse. Write your answer in simplest form.

The angle measures of a polygon are given. Find the value of x .

93. Quadrilateral: $x^\circ, 2x^\circ, 4x^\circ, 5x^\circ$

94. Triangle: $2x^\circ, 5x^\circ, (x + 20)^\circ$

Find the area of the figure with the given dimensions. Use 3.14 for π . Round to the nearest whole number.

95. Parallelogram: $h = 6$ m, $b = 4.5$ m

96. Circle: $r = 19$ yd

Answers

75. _____

76. _____

77. _____

78. _____

79. See left.

80. See left.

81. _____

82. _____

83. _____

84. _____

85. _____

86. _____

87. _____

88. _____

89. _____

90. _____

91. _____

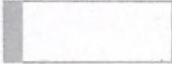
92. _____

93. _____

94. _____

95. _____

96. _____



Continued

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Find the surface area and the volume of the solid with the given dimensions. Use 3.14 for π . Round to the nearest whole number.

- 97. Cylinder: $r = 11$ in., $h = 15$ in.
- 98. Cone: $r = 7$ cm, $h = 12$ cm
- 99. Make an ordered stem-and-leaf plot and a box-and-whisker plot of the data: 56, 59, 65, 45, 68, 41, 66, 49, 51, 52.

Evaluate.

- 100. ${}_5P_4$
- 101. ${}_8C_2$
- 102. ${}_7C_0$
- 103. $4!$

- 104. A computer randomly generates a whole number from 1 to 25. Find the probability that the computer generates a multiple of 5.
- 105. A jar has 6 red marbles and 4 blue marbles. You randomly choose two marbles. Find the probability that both marbles are red.

Find the sum, difference, or product.

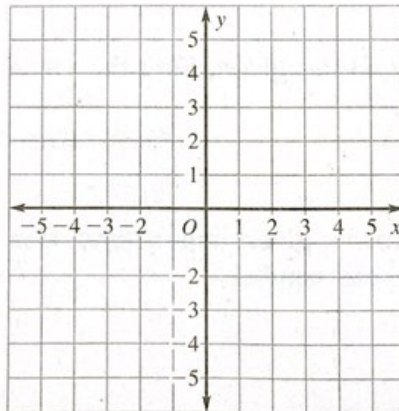
- 106. $(2x^2 + 4x - 5) + (-3x^2 + 6x + 1)$
- 107. $(9x^2 - x + 2) - (4x^2 + 2x)$
- 108. $(-5x + 3)(7x - 6)$
- 109. $3x(10x^3 - 4x^2 + 3)$

Simplify the expression. Write your answer using positive exponents.

- 110. $(ab)^4$
- 111. $(-3y^2)^5$
- 112. $(t^{-7})^4$
- 113. $(x^{-6})^{-3}$

- 114. Make a table of values for $\frac{1}{4}x^2 - 3$. Then graph the function.

x	-6	-4	0	4	6
y					



Answers

97. _____

98. _____

99. See left.

100. _____

101. _____

102. _____

103. _____

104. _____

105. _____

106. _____

107. _____

108. _____

109. _____

110. _____

111. _____

112. _____

113. _____

114. See left.

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Tell whether the sequence is *arithmetic* or *geometric*. Then find the common difference or the common ratio, and write the next three terms.

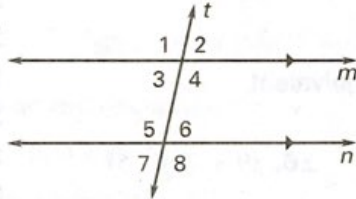
115. 16, 28, 40, 52, ... 116. 1024, 512, 256, 128, ...

Tell whether the angles are *complementary*, *supplementary*, or *neither*.

117. $m\angle 1 = 62^\circ$, $m\angle 2 = 118^\circ$
 118. $m\angle 3 = 27^\circ$, $m\angle 4 = 63^\circ$

Tell whether the angles in the diagram are *vertical*, *corresponding*, *alternate interior*, or *alternate exterior* angles.

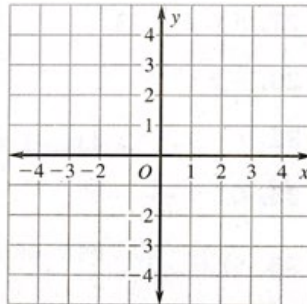
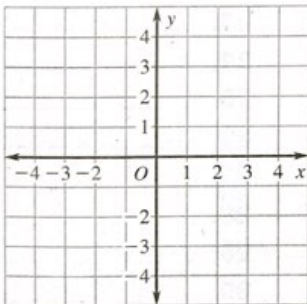
119. $\angle 1$ and $\angle 5$
 120. $\angle 5$ and $\angle 8$
 121. $\angle 2$ and $\angle 7$
 122. $\angle 3$ and $\angle 6$



123. Find the measure of an exterior angle of a regular 18-gon.

Draw $\triangle ABC$ with vertices $A(-4, 1)$, $B(-2, 4)$, and $C(0, -1)$. Then find the coordinates of the vertices of the image after the specified transformation, and draw the image.

124. $(x, y) \rightarrow (x + 4, y - 3)$ 125. Reflection in the y-axis



Answers

115. _____

116. _____

117. _____

118. _____

119. _____

120. _____

121. _____

122. _____

123. _____

124. _____

See left.

125. _____

See left.