incoming 8th gr algebra placement test review packet

Name: _____ **Date:** _____

1. George weighs twice as much as his little brother Sam. George's sister Beth weighs five pounds more than Sam. If Beth weighs 42 pounds, how much does George weigh?

2. How is $(6 \times 10^5) + (3 \times 10^4) + (4 \times 10^2) + (5 \times 10^1) + (8 \times 10^0)$ written in standard form?

3. Write an expression:

   Twice the difference between a number and 5

4. Andrew has a summer job doing yard work. He is paid \$15 per hour and a \$20 bonus when he completes the yard. He was paid \$85 for completing one yard. Write an equation to represent the amount of money he earned.

5. Easha has 3 less than 5 times the number of quarters (I) that Isabelle has. Which expression shows the number of quarters Easha has?

   A. $3I - 5$ B. $5I - 3$ C. $5 - 3I$ D. $3 - 5I$

6. The president of the science club brought 134 cans of juice on a field trip. Each person on the trip received 3 cans of juice, and there were 20 extra cans. Which equation could be used to find n, the number of people who went on the field trip?

   A. $134 = \frac{n}{3} - 20$ B. $134 = \frac{n}{3} + 20$

   C. $134 = 3n - 20$ D. $134 = 3n + 20$

7. Which of these is a factor of the polynomial below?

   $9m^2 - 12m + 4$

   A. $3m - 2$ B. $3m + 2$

   C. $3m - 1$ D. $3m - 4$

8. What is k?

   $12 - k = 4$

9. What is the value of the expression below when $n = -5$?

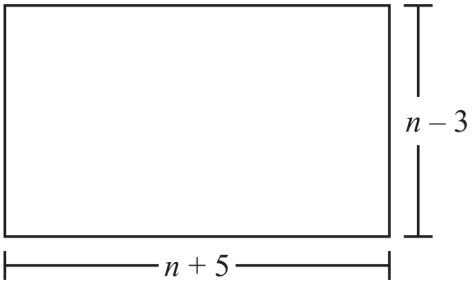
   $-(n + 3)$

10. Simplify.

    $(x^2 - 3x + 1) - (x^2 + 2x + 7)$

11. Julio gets paid \$20 for babysitting. He spends \$1.99 on a package of trading cards and \$6.50 on lunch. Write and solve an equation to show how much money Julio has left.

12. A rectangle and expressions representing its dimensions, in inches, are shown below.



    Which of the following represents the area, in square inches, of the rectangle?

    A. $n^2 + 8n - 15$ B. $n^2 + 2n - 15$

    C. $n^2 - 2n - 15$ D. $n^2 - 8n - 15$

13. Manuel has \$50 in his bank account. Starting this week, he will deposit \$30 into the account each week. If Manuel does *not* take any money out of his account, how many weeks will it take for the total amount of money in his account to reach \$320?

14. Maria has three more than twice as many crayons as Elizabeth. Write an algebraic expression to represent the number of crayons that Maria has.

15. Bonita spent \$8.94 on groceries. She bought a gallon of milk for \$4.29 and 3 pounds of sliced turkey. How much does 1 pound of sliced turkey cost?

16. What is the value of n in this equation?

$$-3n = -27$$

17. If $x = 5$, what is the value of $-8x + 3$?

18. What is the value of x that makes the linear equation below true?

$$3x - 5 = 2(x + 3)$$

19. Evaluate $5(n + 3) - 7n$, when $n = \frac{1}{2}$

20. Simplify the expression: $(-5x^3)(3x^4)$

21. What is the value of the expression below?

$$|-16| - |8|$$

22. Which procedure correctly simplifies the expression below?

$$-(x + 3) - 2(4x - 3)$$

A. $-x - 3 - 8x + 6$
$-9x + 3$

B. $-x - 3 - 8x - 6$
$-9x - 9$

C. $-x + 3 - 8x + 6$
$-9x + 9$

D. $-x - 3 - 8x - 3$
$-9x - 6$

23. Josie's age is four years greater than double Mario's age. If Mario's age is n years, which of these expressions represents Josie's age?

A. $4n$

B. $4n + 2$

C. $2n + 4$

D. $2(n + 4)$

24. Solve: $4(6x - 10) = 8x + 40$

25. Which expression is equivalent to $\frac{8a^6}{2a^3}$?

A. $6a^2$ B. $6a^3$ C. $4a^2$ D. $4a^3$

26. Which of the following expressions is equal to $(x + 2) + (x - 2)(2x + 1)$?

A. $2x^2 - 2x$

B. $2x^2 - 4x$

C. $2x^2 + x$

D. $4x^2 + 2x$

27. What are the solutions for $x^2 - 4 = 0$?

28. Solve the following equation for x.

$$3x - (2x - 3) = 2x + 9$$

29. Which of the following is equivalent to the expression below?

$$x^2 + 3x - 5x^2 + 6$$

A. $-4x^2 + 3x + 6$

B. $4x^2 + 3x + 6$

C. $x^2 - 2x + 6$

D. $x^2 + 2x + 6$

30. Randy used the expression below to find the cost of renting a shed for a certain number of months (m).

$$45 + 125m$$

What is Randy's cost to rent the shed for 3 months?

31. Simplify this expression: $\frac{(56 \div 14) - 3(-2 + 6)}{4^2}$

32. $25x^2 - 40xy + 16y^2$

33. Which of the following shows $9t^2 + 12t + 4$ factored completely?

A. $(3t + 2)^2$

B. $(3t + 4)(3t + 1)$

C. $(9t + 4)(t + 1)$

D. $9t^2 + 12 + 4t$

34. Simplify: $-10 + 2(4 + w)$

35. $3^2 + 5^3 =$ ____

36. Cai bought popcorn for herself and 2 friends, plus a drink only for herself. The popcorn cost $2 for each person, and the total cost for Cai's purchase was $7.50. If d is the cost of a drink, which equation below could be used to determine the cost of Cai's drink?

A. $2 + d = \$7.50$ B. $2 + 2d = \$7.50$

C. $3(2) + d = \$7.50$ D. $3(2) + 3d = \$7.50$

37. Which of these is equivalent to the following expression?

$$(a^2bc^4)(a^3bcd)(b^2d^5)$$

A. $a^5b^5c^6d^6$ B. $a^4b^5c^5d^7$

C. $a^5b^4c^5d^6$ D. $a^4b^4c^6d^6$

38. At the school carnival, Luke bought a hot dog for $2. He also bought g game tickets for $0.25 each. Luke spent a total of $10.

Which of the following equations can be used to find the number of game tickets that Luke bought?

A. $2g + 0.25 = 10$ B. $2g - 0.25 = 10$

C. $0.25g + 2 = 10$ D. $0.25g - 2 = 10$

39.

The length of the rectangle above is 6 units longer than the width. Which expression could be used to represent the area of the rectangle?

A. $x^2 + 6x$ B. $x^2 - 36$

C. $x^2 + 6x + 6$ D. $x^2 + 12x + 36$

40. Which of the following is equivalent to the expression below?

$$x^6 \cdot x^2$$

A. x^3 B. x^4 C. x^8 D. x^{12}

41. A rectangular garden has a perimeter of 40 feet. The length of the garden is 12 feet and the width is w. Which equation can be used to determine the width of the garden?

A. $2(w + 12) = 40$ B. $2(w) + 12 = 40$

C. $w + 12 = 40$ D. $w - 12 = 40$

42. Simplify the expression shown below.

$$(6a^4bc)(7ab^3c)$$

43. Mickey's Lawn Service charges a $15 base fee plus $8 per hour to mow lawns. Mickey charged Mrs. LeJeune $39 to mow her lawn. Which equation could Mrs. Lejeune use to find out how many hours (h) it took Mickey to mow her lawn?

A. $15h + 8 = 39$ B. $15h - 8 = 39$

C. $8h + 15 = 39$ D. $23h = 39$

44. What is the solution to the equation?

$$\tfrac{7}{2}x - 2 = 28 - 4x$$

45. For what value of x will $3x + 4 = x - 6$ be a true statement?

46. Which expression shows the complete factorization of $8ax^2 + 14ax - 15a$?

A. $a(4x + 3)(2x - 5)$ B. $(8x + 3)(x - 5)$

C. $a(8x + 3)(x - 5)$ D. $a(4x - 3)(2x + 5)$

47. What is the value of the expression below?

$$-3\,|6 - 10| + 4$$

48. For all values of x other than zero, which of the following expressions is equivalent to the one shown below?

$$\frac{24x^2 - 40x^3}{8x}$$

A. $3x - 5x^2$ B. $3x - 40x^2$

C. $-2x^2$ D. $-16x^2$

49. Find a value for a, a value for k, and a value for n, so that $(3x + 2)(2x - 5) = ax^2 + kx + n$.

50. What value of n makes the equation below true?

$$16^2 = 2^n$$

51. Which of the following is equivalent to the expression shown below?

$$(16x^3 + 3xy^2 - 8y^3) - (11x^3 - 7xy^2 - 24y^3)$$

A. $5x^3 - 4xy^2 - 32y^3$

B. $5x^3 + 10xy^2 + 16y^3$

C. $27x^3 - 4xy^2 - 32y^3$

D. $27x^3 + 10xy^2 + 32y^3$

52. If x is a real number, for what values of x is the equation $\frac{3x - 9}{3} = x - 3$ true?

53. What is the solution to the equation below?

$$6x + 4 = 2x - 12$$

54. Which of the following is equivalent to $\frac{(3x^3y)^2(2y^3)}{6xy}$?

A. x^5y^4 B. $3x^5y^4$

C. $3x^5y^5$ D. $12x^5y^4$

55. Which of the following is equivalent to the expression below?

$(3ab^2)^3$

A. $3a^3b^5$ B. $3a^3b^6$

C. $9a^3b^6$ D. $27a^3b^6$

56. What value of x makes the equation below true?

$$-6x = 1$$

57. Simplify: $-2xy(-3xy^2 + 4x^2y)$

58. $(-2x^2 + 6x + 1) - 2(4x^2 - 3x + 1)$

59. An equation is shown below.

$$\tfrac{1}{2}(x - 2) = 1$$

What is the solution of the equation?

60. Simplify: $(3b^2c)(8b^3c^6)$

61. Which of the following is the value of $a - 2b^2$ for $a = 19$ and $b = -2$?

A. 3 B. 11 C. 27 D. 35

62. Janice buys 74 packs of gum in a variety of flavors. She chooses twice as many packs of green apple gum as packs of spearmint gum and 6 fewer packs of cinnamon gum than packs of green apple gum. How many packs of spearmint gum does Janice buy?

63. Simplify: $(x + 2)(x^2 + 2x + 3)$

64. Two airplanes left the same airport traveling in opposite directions. If one airplane averages 400 miles per hour and the other airplane averages 250 miles per hour, in how many hours will the distance between the two planes be 1625 miles?

65. What is the value of the expression below?

$$4 - 2^3 \cdot 3$$

66. What is the factored form of the expression below?

$x^2 - 16$

67. Which expression is the result when $2a - 5$ is subtracted from $3a + 3$?

A. $a - 2$ B. $5a - 2$

C. $a + 8$ D. $-a + 8$

68. Combine Like Terms:

$-3k - 8k$

69. What is the value of the expression below?

$$\frac{8 + 6 \cdot 4}{48 \div 6 - 4}$$

70. Simplify: $-|7 - 3| - |-5|$

71. Evaluate:

$7^2 - 24 \div 3 + 26$

72. What is the solution to the equation below?

$3(x - 4) = 5x - 6$

73. Factor the following. Check using FOIL then solve for x:

$3x^2 + 5x - 2 = 0$

74. Santos has a job after school. He earns \$8 per hour. Which equation will determine h, the number of hours he needs to work to earn \$44?

75. Which of the following is equivalent to the expression below?

$2x^2(x^3 + x^2 + 4x)$

A. $2x^6 + 2x^4 + 8x^2$ B. $3x^6 + 3x^4 + 6x^2$

C. $3x^5 + 3x^4 + 6x^3$ D. $2x^5 + 2x^4 + 8x^3$

76. Which expression represents a number that is three less than twice d?

A. $3 + 2d$ B. $3 - 2d$

C. $2d - 3$ D. $\frac{d}{2} - 3$

77. Millicent's age in years is twice the sum of her sister's age and 3. If x represents her sister's age, which expression could be used for Millicent's age?

A. $2x + 3$ B. $2x - 3$

C. $2(x + 3)$ D. $3(x + 2)$

78. Kelly ran 3 miles fewer than twice as far as Jim. Jim ran m miles. Which expression represents how far Kelly ran?

A. $3 - 2m$ B. $2m - 3$

C. $3m - 2$ D. $2(m - 3)$

79. What is the complete factorization of the polynomial shown?

$5x^3 - 20x^2 - 25x$

80. Which value is equivalent to $\frac{10^8}{10^6}$

A. 100 B. 1000 C. 10^4 D. 10^{14}

81. What does x equal in the equation below?

$$\frac{3x}{4} - 2 = 7$$

82. Simplify the expression.

$-5x\left(\frac{1}{5} - y\right) =$

83. If $x = -7$, then $-x =$

84. Simplify: $6(2x + 3y) + 3(x - y)$

85. What is the value of the expression $3(2 - 4)^2 + 3$?

86. Solve for x.

$3x + 7 = 2x$.

87. Which expression is equivalent to the one shown below?

$(4x^2)(-3x^3)$

A. $12x$ B. $12x^5$ C. $-12x^6$ D. $-12x^5$

88. Simplify the expression below.

$3^3 - 2^2$

89. Which shows the following polynomial factored completely?

$9s^3 + 24s^2 + 16s$

A. $s(3s - 4)^2$ B. $3s(3s^2 + 8s)$

C. $3s^2(3s + 8)$ D. $s(3s + 4)^2$

90. What is the value of the expression when $x = 5$ and $y = -2$?

$\frac{1}{2}y - x$

91. An isosceles triangle has two sides with length x.

The third side is $\frac{1}{2}$ of x. What is the perimeter?

92. Combine Like Terms:

$4w^3 + (-w^3)$

93. Which is equivalent to the expression below?

$(-4gh)(-10gh)$

A. $-14gh$ B. $-14g^2h^2$

C. $40gh$ D. $40g^2h^2$

94. What is "two more than the quotient of six and a number, n," written as an algebraic expression?

95. Which is equivalent to the expression shown below?

$-2a^4 - 3a^2 + 7a + 6 - 6a^3 + a^4 + 7a^2 - 6$

A. $-a^4 - 6a^3 + 4a^2 + 7a$

B. $-a^8 - 6a^3 + 4a^4 + 12$

C. $-3a^4 - 6a^3 + 10a^2 + 7a$

D. $-3a^8 - 6a^3 + 10a^4 + 7a$

96. What value of x satisfies the equation $\frac{-4x - 2}{3} = -6$

97. Which of the following is equivalent to the expression below?

$x^2 + 3x - 28$

A. $(x - 4)(x + 7)$ B. $(x + 4)(x - 7)$

C. $(x - 14)(x + 2)$ D. $(x + 14)(x - 2)$

98. Which expression is equivalent to $2a^2 + 4 - 5a + 3a^2 - 7$?

A. $5a^2 - a - 7$ B. $5a^4 - a - 7$

C. $5a^2 - 5a - 3$ D. $5a^4 - 5a - 3$

99. Write an expression:

7 more than 3 times a number

100. Solve by factoring:

$x^2 - 3x = 0$

101. What is the value of $-2[x - 2(x - y)]$ when $x = -3$ and $y = 7$?

102. Use the expression below to answer the following question(s).

$$2x - 3(5x - 8)$$

Which could be the first step in simplifying the expression above?

A. $2x - 15x + 8$ B. $2x - 15x - 24$

C. $2x - 15x - 8$ D. $2x - 15x + 24$

103. Simplify: $6b + 4a + 3a - 2b$

104. Joelyn has decided to save \$12 a week to buy a stereo system that costs \$125. Which expression shows how much money she will still have to save after n weeks?

A. $125 + 12n$ B. $125 - 12n$

C. $(125 + 12)n$ D. $(125 - 12)n$

105. The perimeter of a garden is 82 feet. The length is 5 more than twice the width. What is the width of the garden?

106. Simplify: $(x + 7)(x - 4)$

107. Write an expression:

7 less than the product of 2 and a number

108. Simplify the expression. $3a(15 + 6 - 3^2) + 7a\left(\frac{8}{4}\right)$

109. Amie had \$26 dollars to spend on school supplies. After buying 10 pens, she had \$14.30 left. How much did each pen cost?

110. What is the factored form of the expression below?

$$5x^2 + 13x - 6$$

111. A triangle has two congruent sides that are x centimeters long. The third side measures 3 centimeters more than each of the congruent sides. Which expression could be used to represent the perimeter in centimeters of this triangle?

A. $4x + 6$ B. $3x + 6$ C. $3x + 3$ D. $2x + 3$

112. Matthew cleaned the garage in 2.5 hours. He was paid x dollars per hour. He then spent \$3 and had \$12 remaining. The following equation represents this situation.

$$2.5x - 3 = 12$$

How much was he paid per hour?

113. Choose the number sentence that means "2 more than 2 times a number."

114. Factor the following. Check using FOIL then solve for x:

$$x^2 - 2x - 24 = 0$$

115. The sum of three consecutive odd integers is 21. If x is the least of these odd integers, which equation *must* be true?

A. $3x = 21$ B. $3x + 3 = 21$

C. $3x + 4 = 21$ D. $3x + 6 = 21$

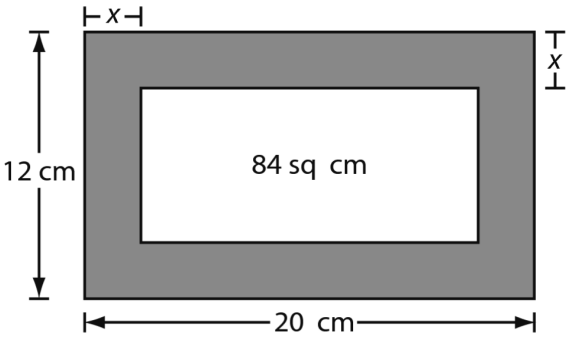
116. What is the solution to the equation below?

$$\frac{y}{-7} = 21$$

117. What value of x makes the equation below true?

$$3x + 2(x - 5) = 50$$

118. Martin put a picture in a rectangular frame measuring 20 centimeters by 12 centimeters. The area enclosed by the frame is 84 square centimeters.



Which equation shows how to find x, the uniform width of the frame in centimeters?

119. Simplify:

$5b - 2(7 - b)$

120. Marsela's age is equal to the expression $(24 \times a) \div 8$ when $a = 3$. How old is Marsela?

121. Which of the following expressions is equivalent to the one shown below?

$(b^3 + 5b^2 - 2b) - (b^3 + b - 1)$

A. $5b^2 - b$ B. $5b^2 - 3b + 1$

C. $4b^2 - b$ D. $5b^2 - 3b - 1$

122. Add: $(c + 4) + (2c - 1)$

123. A 120-foot-long rope is cut into 3 pieces. The first piece of rope is twice as long as the second piece of rope. The third piece of rope is three times as long as the second piece of rope. What is the length of the longest piece of rope?

124. What is the simplified form of the expression?

$$\frac{4x^3y^3}{8x^5y^2}$$

125. What value of n makes the equation below true?

$$n \cdot \tfrac{4}{5} = 1$$

126. What is the value of the expression below?

$14 - 4\,[2 + 3\,(8 - 5)]$

127. The top of a rectangular table has a length that is two times its width. The perimeter of the tabletop is 144 inches.

What is the width of the tabletop?

128. The sum of three consecutive even numbers is 48. What is the smallest of these numbers?

129. On a class trip, Elise brings $30 to the Sea Life Center. She spends $18 on gifts and purchases three corn dogs, and then she has spent all of her money. Which equation can you use to find the cost of a corn dog?

A. $3x = 30 + 18$ B. $3x + 18 = 30$

C. $3 + 18x = 30$ D. $30x = 3 + 18$

130. The length of a rectangle is 1 inch more than 2 times its width. The area of the rectangle is 36 square inches.

What is the *length* of the rectangle?

131. Which expression is equivalent to $7a^2b \cdot 7bc^2$?

A. $14a^2b^2c^2$ B. $49a^2bc^2$

C. $49a^2b^2c^2$ D. $343a^2b^2c^2$

132. Evaluate $|3x + 2| - 4$ when $x = -4$.

133. Which expression represents the sum of $(2x - 5y)$ and $(x + y)$?

A. $3x - 4y$ B. $3x - 6y$

C. $x - 4y$ D. $x - 6y$

134. Which of the following is equivalent to the expression below?

$(x - 2)(2x^2 + 3) + x^3 - 2x$

A. $3x^3 - 2x - 6$ B. $3x^3 + x - 6$

C. $3x^3 - x^2 - 2x - 6$ D. $3x^3 - 4x^2 + x - 6$

135. Simplify: $\left(\dfrac{2x^3}{x}\right)^5$

136. Brian is 9 years older than Dan. Let d represent Dan's age. Which expression models Brian's age?

A. $d + 9$ B. $9d$ C. $d - 9$

137. Which of the following is a factor of the polynomial below?

$$20x^3 - 10x^2 + 15x$$

A. $5x$ B. $5x^2$ C. $5x^3$ D. $5x^4$

138. What is this expression in its simplest form?

$$4x - 7x + x$$

139. Which product of factors is equivalent to $(x + 1)^2 - y^2$?

A. $(x + 1 + y)^2$

B. $(x + 1 - y)^2$

C. $(x - 1 + y)(x - 1 - y)$

D. $(x + 1 + y)(x + 1 - y)$

140. Ms. Gill told her students to draw a rectangle with these properties.

- The length is 3 inches longer than the width.
- The area is 40 square inches.

What is the width of this rectangle?

141. Mary correctly used the order of operations to answer the following problem:

$$20 - 8 \cdot 4 \div 2 + 6$$

What is Mary's answer?

142. What does x^5 equal when $x = -2$?

143. The expression $32y$ is used to convert quarts to ounces, where y is the number of quarts. Using this expression, how many ounces are in 30 quarts?

144. Look at the equation below.

$$10y - \tfrac{3}{2}y + 8 = 7 + 6y - 4\tfrac{1}{2}$$

What is the solution of the equation?

145. Simplify.

$$10 - 3(p + 2)$$

146. Solve: $-x + 7 - 6x = 19 - 7x$

147. The expression $4x^2 + 2x - 6 - x(3 - x)$ is equivalent to

148. What is the simplified form of this expression?

$$4(2x - 5y) - 3x$$

149. Solve this equation, show your work, and choose the best answer: $5x + 8 = 18$

150. How can the expression $3(x + 4) + 5x - 14$ be simplified?

151. An algebraic expression is shown below.

$(x^4y^2z)(xy^3z^2)$

Which of the following is equivalent to the expression shown?

A. $x^4y^6z^2$ B. $x^4y^5z^2$ C. x^5y^6z D. $x^5y^5z^3$

152. Evaluate the expression: $3a - 2(b + 9)$, where $a = 5$ and $b = 6$.

153. Simplify.

$$\frac{4x^3 + 2x^2 - 8x}{2x}$$

154. Which term results when $x^6 - 2ax + c$ is subtracted from $x^2 - ax$?

A. $-ax$ B. $-x^6$ C. c D. $-x^2$

155. Which of the following is one of the factors of the expression below?

$4x^2 - 25$

A. $(4x - 5)$ B. $(2x + 1)$

C. $(4x - 1)$ D. $(2x - 5)$

156. $(6x^2 + 3x + 10) - 4(x^2 - 4x + 6) =$

157. Which expression is equivalent to $(x+3)^3 - 9x(x+3)$?

A. $x^3 + 27$ B. $x^3 - 27$

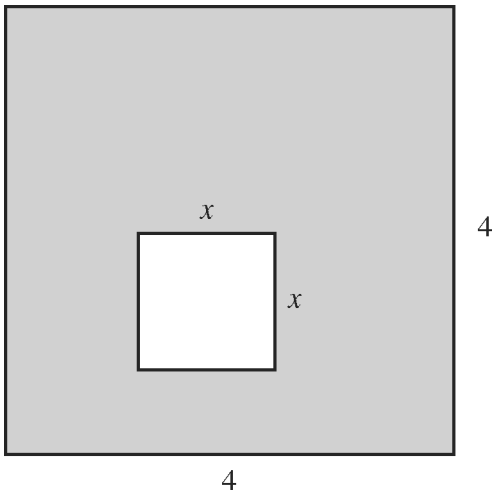
C. $x^3 - 9x^2 - 27x + 27$ D. $x^3 - 9x^2 + 27x + 27$

158. Which expression shows another way to write $(4^3)^3$?

A. 4^{3-3} B. $4^{3\div3}$ C. 4^{3+3} D. $4^{3\times3}$

159. What is the value of $xy - |x|$ when $x = -2$ and $y = 6$?

160. A square with a side of x is inside a square with a side of 4, as pictured below. Which expression represents the area of the shaded region in terms of x?



A. $16 + x^2$ B. $16 - x^2$

C. $16 - 2x$ D. $16 - 4x$

161. Solve $10y + 7 - 4y = -5 + 6y + 22$. Tell whether the equation has infinitely many solutions or no solution.

162. Solve each of the unknowns in the equations below:

$$\frac{8}{r} = 96$$

163. Factor $x^3 - 2x^2 - 35x$

164. Which of the following is an algebraic expression for "twice the sum of a number and 5"?

A. $2(n-5)$ B. $2(n+5)$

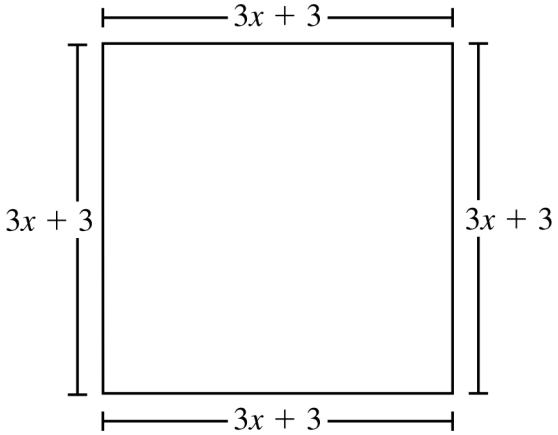
C. $2n+5$ D. $2+n+5$

165. Solve: $\frac{5}{4}n + 5 = 20$

166. Simplify.

$$(4x)^2 - 4x^3$$

167. A square and its dimensions are shown below.



What is the perimeter of the square?

168. The lengths of the sides of a triangle are y, $y+1$, and 7 centimeters. If the perimeter is 56 centimeters, what is the value of y?

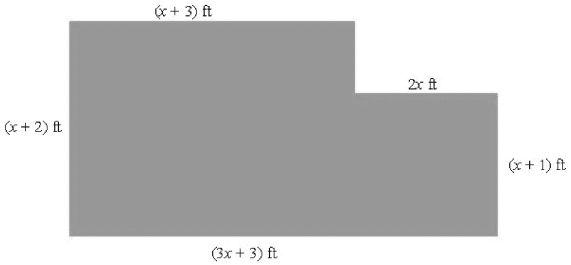
169. Which expression shows the complete factorization of $12x^2 - 147$?

A. $(3x-7)(4x+2)$ B. $(4x-21)(3x+7)$

C. $12(x-7)(x+7)$ D. $3(2x-7)(2x+7)$

170. Evaluate this expression if $p = 0$ and $s = -4$: $2s + 3p - 4(p - s)$

171. The figure below is made up of two rectangles.



What is the total area, in square feet, of the figure?

172. The perimeter of a rectangular swimming pool is 42 m. The length is 5 meters more than the width. What is the length of the swimming pool?

173. Simplify:

$(-5)^3 = ?$

174. What is the difference between the binomials $2x + 3$ and $x + 3$?

175. Which expression is equivalent to $(6y^2 - 2)(6y + 2)$?

A. $36y^2 - 4$

B. $36y^3 - 4$

C. $36y^2 + 12y^2 + 12y - 4$

D. $36y^3 + 12y^2 - 12y - 4$

176. Which is the factored form of $3a^2 - 24ab + 48b^2$?

A. $(3a - 8b)(a - 6b)$ B. $(3a - 16b)(a - 3b)$

C. $3(a - 4b)(a - 4b)$ D. $3(a - 8b)(a - 8b)$

177. Beth is two years older than Julio. Gerald is twice as old as Beth. Debra is twice as old as Gerald. The sum of their ages is 38. How old is Beth?

178. Which binomial is a factor of $(x^3 - x^2 + 3x - 3)$?

A. $x - 3$ B. $x + 1$ C. $x^2 - 1$ D. $x^2 + 3$

179. What is the complete factorization of $32 - 8z^2$?

180. Which polynomial is equivalent to $(2y - 3)^2$?

A. $4y^2 + 6y - 9$ B. $4y^2 - 12y + 9$

C. $4y^2 + 9$ D. $4y^2 - 9$

181. $\dfrac{5x^3}{10x^7} =$

182. Pat cleans windows during the summer. He charges \$50 per house and an additional \$5 per window. Which expression represents how much Pat would charge to clean x windows at 1 house?

A. $50x + 5$ B. $55 + x$

C. $50 + 5x$ D. $50 - \dfrac{x}{5}$

183. $\left(\frac{2}{3}\right)^4 =$

184. When factored completely, which is a factor of $12ax^2 - 3a$?

A. $12a$ B. $(4x^2 + 1)$

C. $3a$ D. $(4x - 1)$

185. Which of the following equations has infinitely many solutions?

A. $2x + 3 = 5 + 2x$ B. $2x + 3 = 5 + 3x$

C. $3x - 5 = -5 + 2x$ D. $3x - 5 = -5 + 3x$

186. Three birds have a combined age of 76 years. One bird is 10 years old. The second bird is twice as old as the third bird. How old are they?

187. Which of the following is equivalent to the expression below?

$$6y^5 - 24y^2 - 18y$$

A. $6y(y^4 - 4y - 3)$ B. $6y(y^4 - 24y - 18)$

C. $6y^5(1 - 24y^2 - 18y)$ D. $6y^5(1 - 4y^3 - 3y^4)$

188. Which of the following shows the expression below in factored form?

$x^2 + 2x - 8$

A. $(x - 2)(x + 4)$ B. $(x + 2)(x + 4)$

C. $(x - 1)(x + 8)$ D. $(x + 1)(x - 8)$

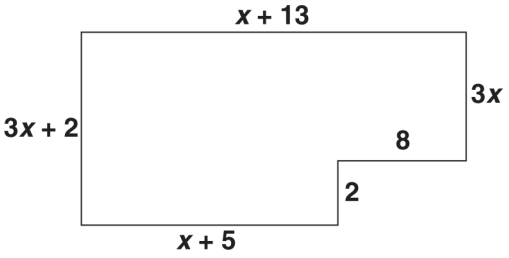
189. Solve by factoring:

$x^2 + x = 0$

190. Which is a factor of $x^2 - 11x + 24$?

A. $x + 3$ B. $x - 3$ C. $x + 4$ D. $x - 4$

191. What is the perimeter of the figure shown below, which is not drawn to scale?



A. $5x + 33$ B. $5x^3 + 33$

C. $8x + 30$ D. $8x^4 + 30$

192. An equation is shown below.

$$\tfrac{1}{6}(36x - 12) - 5x = 10$$

What value of x makes the equation true?

193. Which of the following is the perimeter of a square whose side measures $2a + 3$?

A. $11a$ B. $8a + 7$

C. $8a + 3$ D. $8a + 12$

194. Simplify the expression $2x(5 + y)$.

195. Simplify:

$-13x + (-7x) + 5x$

196. Tom has 12 quarters. He has 3 times as many quarters as he has dimes. Which equation can be used to calculate the number dimes (d) Tom has?

A. $3d = 12$ B. $\frac{d}{3} = 12$

C. $d + 3 = 12$ D. $d - 3 = 12$

197. Write an expression:

3 times the sum of a number and 5

198. Factor the following. Check using FOIL then solve for x:

$2x^2 + x - 6 = 0$

199. What is the simplest form of the expression $\dfrac{2x^4y^2}{x^2y^2}$, $x \neq 0$, $y \neq 0$?

200. What is the value of n in the equation $\dfrac{n}{6} + 3 = 12$?

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1.
Answer: 74 pounds
Points: 1

2.
Answer: 630,458
Points: 1

3.
Answer: $2(z - 5)$
Objective: CC 6.EE.2
Points: 1

4.
Answer: $15h + 20 = 85$, where h is the number of hours worked.
Objective: CC 6.EE.6
Points: 1

5.
Answer: B
Points: 1

6.
Answer: D
Objective: MA 8.P.4
Points: 1

7.
Answer: A
Points: 1

8.
Answer: 8
Points: 1

9.
Answer: 2
Objective: MA 7.P.2
Points: 1

10.
Answer: $-5x - 6$
Objective: 1A.10.0
Points: 1

11.
Answer: $20 = \$1.99 + \$6.50 + x$, therefore $x = \$11.51$
Objective: CC 6.EE.7
Points: 1

12.
Answer: B
Objective: MA 10.P.3
Points: 1

13.
Answer: 9 weeks
Points: 1

14.
Answer: $2c + 3$, where c represents the number of crayons that Elizabeth has.
Objective: CC 6.EE.6
Points: 1

15.
Answer: \$1.55
Points: 1

16.
Answer: 9
Objective: 3.02
Points: 1

17.
Answer: -37
Points: 1

18.
Answer: 11
Objective: MA 10.P.6
Points: 1

19.
Answer:
Objective: CC 6.EE.2
Points: 1

20.
Answer: $-15x^7$
Objective: PA A.2.2.2
Points: 1

21.
Answer: 8
Objective: MA 7.N.4
Points: 1

22.
Answer: A
Objective: 5-1-1
Points: 1

23.
Answer: C
Objective: 3-3-2
Points: 1

24.
Answer: 5
Objective: 30604
Points: 1

25.
Answer: D
Objective: 7.AF.2.2
Points: 1

26.
Answer: A
Objective: 1A.10.0
Points: 1

27.
Answer: $\{-2, 2\}$
Objective: 5.04
Points: 1

28.
Answer: $x = -6$
Objective: MA 10.P.-
Points: 1

29.
Answer: A
Objective: MA 10.P.4
Points: 1

30.
Answer: $420
Points: 1

31.
Answer: $-\frac{1}{2}$
Points: 1

32.
Answer: $(5x - 4y)^2$
Objective: 2A.4.0
Points: 1

33.
Answer: A
Objective: 1A.11.0
Points: 1

34.
Answer: $-2 + 2w$
Objective: 1.10
Points: 1

35.
Answer:
Objective: M1.4.4
Points: 1

36.
Answer: C
Objective: MA 6.P.-
Points: 1

37.
Answer: C
Points: 1

38.
Answer: C
Objective: MA 8.P.7
Points: 1

39.
Answer: A
Objective: 1A.10.0
Points: 1

40.
Answer: C
Objective: CC 8.EE.1
Points: 1

41.
Answer: A
Objective: 3.03
Points: 1

42.
Answer: $42a^5b^4c^2$
Objective: 7.AF.2.2
Points: 1

43.
Answer: C
Objective: LA A.1
Points: 1

44.
Answer: $x = 4$
Objective: 3-3-3
Points: 1

45.
Answer: $x = -5$
Points: 1

46.
Answer: D
Points: 1

47.
Answer: -8
Objective: MA 10.N.2
Points: 1

48.
Answer: A
Objective: MA 10.P.3
Points: 1

49.
Answer:
Objective: CC A.SSE.2
Points: 1

50.
Answer: 8
Objective: MA 10.N.2
Points: 1

51.
Answer: B
Points: 1

52.
Answer: all values of x.
Objective: 2A.15.0
Points: 1

53.
Answer: $x = -4$
Objective: 3-3-8
Points: 1

54.
Answer: B
Points: 1

55.
Answer:
Objective: MA 10.P.4
Points: 1

56.
Answer: $-\frac{1}{6}$
Objective: MA 10.N.1
Points: 1

57.
Answer: $6x^2y^3 - 8x^3y^2$
Objective: 1.02
Points: 1

58.
Answer: $-10x^2 + 12x - 1$
Objective: 2A.3.0
Points: 1

59.
Answer: 4
Objective: CC 7.EE.4A
Points: 1

60.
Answer: $24b^5c^7$
Objective: 1.01
Points: 1

61.
Answer: B
Objective: MA 8.P.2
Points: 1

62.
Answer: 16
Points: 1

63.
Answer: $x^3 + 4x^2 + 7x + 6$
Objective: 1.02
Points: 1

64.
Answer: 2.5
Objective: 1A.15.0
Points: 1

65.
Answer: -20
Objective: MA 8.N.7
Points: 1

66.
Answer: $(x - 4)(x + 4)$
Objective: MA 10.P.4
Points: 1

67.
Answer: C
Points: 1

68.
Answer: $5k$
Points: 1

69.
Answer: 8
Objective: MA 10.N.2
Points: 1

70.
Answer: -9
Objective: 30606
Points: 1

71.
Answer: 67
Objective: CC 6.EE.1
Points: 1

72.
Answer: $x = -3$
Objective: 3-3-8
Points: 1

73.
Answer: 2, $\frac{1}{3}$
Points: 1

74.
Answer: $8h = 44$
Objective: 3-3-1
Points: 1

75.
Answer:
Objective: MA 10.P.3
Points: 1

76.
Answer: C
Points: 1

77.
Answer: C
Points: 1

78.
Answer: B
Points: 1

79.
Answer: $5x(x-5)(x+1)$
Objective: 3-3-14
Points: 1

80.
Answer: A
Objective: 7.NS.2.3
Points: 1

81.
Answer: 12 or $x = 12$
Objective: MA 8.P.-
Points: 1

82.
Answer: $-x + 5xy$
Objective: M1.4.5
Points: 1

83.
Answer: 7
Objective: 1A.2.0
Points: 1

84.
Answer: $15x + 15y$
Objective: 1.11
Points: 1

85.
Answer: 15
Objective: MA 10.N.2
Points: 1

86.
Answer: $x = -7$
Objective: 30609
Points: 1

87.
Answer: D
Objective: MA 10.P.3
Points: 1

88.
Answer: 23
Objective: CC 6.EE.1
Points: 1

89.
Answer: D
Points: 1

90.
Answer: -6
Objective: 3-3-2
Points: 1

91.
Answer: $2\frac{1}{2}x$
Objective: 6.AF.3.2
Points: 1

92.
Answer: $3w^3$
Points: 1

93.
Answer: D
Objective: MS 2h1
Points: 1

94.
Answer: $\frac{6}{n} + 2$
Objective: CC 6.EE.6
Points: 1

95.
Answer: A
Points: 1

96.
Answer: 4
Points: 1

97.
Answer: A
Objective: MA 10.P.4
Points: 1

98.
Answer: C
Objective: MS 2a1
Points: 1

99.
Answer: $3x + 7$
Objective: CC 6.EE.2
Points: 1

100.
Answer: 3, 0
Points: 1

101.
Answer: -34
Objective: MA 8.P.-
Points: 1

102.
Answer: D
Objective: MA 10.N.-
Points: 1

103.
Answer: $4b + 7a$
Points: 1

104.
Answer: B
Points: 1

105.
Answer: 12 feet
Points: 1

106.
Answer: $x^2 + 3x - 28$
Objective: 30607
Points: 1

107.
Answer: $2x - 7$
Objective: CC 6.EE.2
Points: 1

108.
Answer: $50a$
Objective: M1.3.5
Points: 1

109.
Answer:
Objective: CC 7.EE.4
Points: 1

110.
Answer: $(5x - 2)(x + 3)$
Points: 1

111.
Answer: C
Objective: 5.02
Points: 1

112.
Answer: $6.00
Points: 1

113.
Answer: $2 + 2n$
Objective: M4.3.5
Points: 1

114.
Answer: 6, −4
Points: 1

115.
Answer: D
Points: 1

116.
Answer: $y = -147$
Objective: MA 8.P.7
Points: 1

117.
Answer: 12
Objective: MA 8.P.-
Points: 1

118.
Answer: $(12 - 2x)(20 - 2x) = 84$
Points: 1

119.
Answer: $7b - 14$
Points: 1

120.
Answer: 9
Objective: LA A.2
Points: 1

121.
Answer: B
Objective: MA 10.P.3
Points: 1

122.
Answer: $3c + 3$
Points: 1

123.
Answer: 60 feet
Objective: 1A.5.0
Points: 1

124.
Answer: $\frac{y}{2x^2}$
Objective: 2.2.B
Points: 1

125.
Answer: $\frac{5}{4}$
Objective: MA 10.N.1
Points: 1

126.
Answer: −30
Objective: 1-2-7
Points: 1

127.
Answer: 24 inches
Objective: MA 10.P.7
Points: 1

128.
Answer:
Objective: CC 7.EE.4
Points: 1

129.
Answer: B
Objective: M4.3.5
Points: 1

130.
Answer: 9 inches
Objective: MA 10.P.7
Points: 1

131.
Answer: C
Objective: 7.AF.2.2
Points: 1

132.
Answer: 6
Objective: 1.01
Points: 1

133.
Answer: A
Objective: CC 7.EE.1
Points: 1

134.
Answer: D
Objective: MA 10.P.3
Points: 1

135.
Answer: $32x^{10}$
Points: 1

136.
Answer: A
Points: 1

137.
Answer: A
Objective: MA 10.P.4
Points: 1

138.
Answer: $-2x$
Points: 1

139.
Answer: D
Objective: 2A.4.0
Points: 1

140.
Answer: 5 inches
Objective: MA 10.P.-
Points: 1

141.
Answer: 10
Points: 1

142.
Answer: -32
Objective: 7.AF.2.1
Points: 1

143.
Answer: 960 ounces
Objective: 3-3-2
Points: 1

144.
Answer: $y = -2\frac{1}{5}$
Points: 1

145.
Answer: $-3p + 4$
Objective: 2.3
Points: 1

146.
Answer: 7 = 19, no solution
Objective: CC 8.EE.7
Points: 1

147.
Answer: $5x^2 - x - 6$.
Objective: MA 10.P.-
Points: 1

148.
Answer: $5x - 20y$
Objective: LA A-2-H
Points: 1

149.
Answer: $x = 2$
Objective: M4.3.5
Points: 1

150.
Answer: $8x - 2$
Objective: 5.02
Points: 1

151.
Answer: D
Objective: MA 10.P.4
Points: 1

152.
Answer: -15
Points: 1

153.
Answer: $2x^2 + x - 4$
Objective: 1A.10.0
Points: 1

154.
Answer: B
Points: 1

155.
Answer: D
Objective: MA 10.P.4
Points: 1

156.
Answer: $2x^2 + 19x - 14$
Objective: CC A.APR.1
Points: 1

157.
Answer: A
Points: 1

158.
Answer: D
Points: 1

159.
Answer: -14
Objective: 2.3
Points: 1

160.
Answer: B
Objective: 6.AF.3.1
Points: 1

161.
Answer: No solutions
Objective: CC 8.EE.7
Points: 1

162.
Answer: $\frac{1}{12}$
Objective: M4.2.5
Points: 1

163.
Answer:
Objective: CC A.SSE.2
Points: 1

164.
Answer: B
Objective: 3.01
Points: 1

165.
Answer:
Objective: CC 7.EE.4
Points: 1

166.
Answer: $16x^2 - 4x^3$
Objective: 1.1
Points: 1

167.
Answer:
Objective: MA 10.P.3
Points: 1

168.
Answer: 24
Objective: 1A.5.0
Points: 1

169.
Answer: D
Objective: 2A.4.0
Points: 1

170.
Answer: -24
Objective: M4.3.5
Points: 1

171.
Answer: $3x^2 + 7x + 6$
Points: 1

172.
Answer: 13 m
Objective: 5.03
Points: 1

173.
Answer: -125
Objective: LA N-2-H
Points: 1

174.
Answer: x
Points: 1

175.
Answer: D
Objective: 2A.3.0
Points: 1

176.
Answer: C
Objective: 1A.11.0
Points: 1

177.
Answer: 5
Objective: 1A.5.0
Points: 1

178.
Answer: D
Points: 1

179.
Answer: $8(2 + z)(2 - z)$
Objective: 1A.11.0
Points: 1

180.
Answer: B
Points: 1

181.
Answer: $\frac{1}{2x^4}$
Objective: 1A.10.0
Points: 1

182.
Answer: C
Points: 1

183.
Answer: $\frac{16}{81}$
Objective: 7.NS.1.2
Points: 1

184.
Answer: C
Objective: PA A1.1.1.5.2
Points: 1

185.
Answer: D
Objective: CC 8.EE.7
Points: 1

186.
Answer: 10,44,22
Objective: M7.3.2
Points: 1

187.
Answer: A
Objective: MA 10.P.4
Points: 1

188.
Answer: A
Objective: MA 10.P.4
Points: 1

189.
Answer: 1, 0
Points: 1

190.
Answer: B
Objective: 1A.11.0
Points: 1

191.
Answer: C
Objective: 1A.10.0
Points: 1

192.
Answer: 12
Objective: CC 8.EE.7B
Points: 1

193.
Answer: D
Objective: 1.11
Points: 1

194.
Answer: $10x + 2xy$
Objective: M1.4.5
Points: 1

195.
Answer: $-15x$
Objective: H.1A.4
Points: 1

196.
Answer: A
Points: 1

197.
Answer: $3(x + 5)$
Objective: CC 6.EE.2
Points: 1

198.
Answer: $\frac{3}{2}, -2$
Points: 1

199.
Answer: $2x^2$
Objective: MA 10.P.-
Points: 1

200.
Answer: 54
Points: 1