

Algebra Placement Test Review 1

Simplify.

1. -5^2

2. -8^2

3. $(-5)^2$

4. $(-8)^2$

5. 5^2

6. 8^2

Rewrite using exponents.

7. $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7$

8. $3 \cdot 3 \cdot 3 \cdot 7 \cdot 7 \cdot 7 \cdot 7$

9. $3 \cdot 11 \cdot 3 \cdot 11 \cdot 11 \cdot 3$

Write in expanded form.

10. 5^3

11. π^5

Simplify.

12. $\frac{1}{2} \cdot 12 \cdot 4$

13. $\frac{1}{3} \cdot 6 \cdot 2$

14. $\frac{16-10x}{2}$

15. $\frac{18x+15}{3}$

16. $10 \div 5 + 5 \cdot 2$

17. $6 \div 2 + 4 \cdot 3$

18. $5 + 3(2^2 + 4) \div 2$

19. $4 - 2(3^2 - 1) \div 2$

20. $1 + 3(2^3 + 4) \div 4$

21. $2 + 2^2 \cdot 5$

22. $1 + 3^2 \div 9$

Simplify the Expression.

23. $3x - 4y + 2x - 2y$

24. $6x - 9y + 3x - 3y$

25. $10x - 15y - 10x - 5y$

26. $-8x + 12y + 8x + 4y$

27. $4f^2g + 6f^2g$

28. $5y^3z^2 - 2y^3z^2$

29. $x^3y + xy^3$

30. $a^7b^5 + a^5b^7$

31. $3x - (x + 4)$

32. $a - (5a + 1)$

33. $2x - (x - 4)$

34. $10x - (x - 10)$

Solve.

35. $\frac{3}{4}x = 7$

36. $\frac{4}{5}x = 9$

37. $\frac{x}{7} = -3$

38. $\frac{x}{4} = -5$

39. $x + 5 = -7$

40. $x + 3 = -4$

41. $-3x = 7$

42. $-5x = 9$

43. $5 - 4x = 10$

44. $-4 - y = 18$

45. $7 + 9x = 12$

46. $-3 + 10y = -4$

47. $6 = 4 - 2x$

48. $10 = 5y + 25$

49. $4x - 2 = 7x + 11$

50. $19y + 11 = 10y + 38$

51. $7x - 3 - 4x = 9$

52. $-2 + 2y + 5 - y = -1$

53. $9x - (4 + 3x) = 9$

54. $4y - (7 - 8y) = 17$

Solve for the indicated variable.

55. $A = \frac{1}{2}bh$ for h

56. $5F - 9C = 160$ for C

Translate the verbal expression into an algebraic expression or equation.

57. Four less than a number is 12.

58. Fifteen is three less than a number.

59. Six more than two-thirds of a number

60. Ten more than triple a number

61. Twenty is the product of 4 and a number

62. Fifty-six is the product of eight and a number

63. Eighty-one is the product of three and a number

64. The difference between twice a number and 5

65. The difference between half a number and sixteen

66. The difference between quadruple a number and three

67. You have \$75 to buy pizza for a party. Each slice of pizza costs \$1.25. Write an equation to determine how many slices of pizza you can buy.

68. You have \$50 to buy candy for a Halloween party. Each bag of candy costs \$2.50. Write an equation to determine how many bags of candy you can buy.

69. You have \$60 to buy pencils to give away as party favors. Each pencil costs \$0.75. Write an equation to determine how many pencils you can buy.

70. A basketball team finished its 60 games with no ties. The team won 4 times as many games as it lost. How many games did the team win?

71. The school sold 150 cookies in two days. Three times as many cookies were sold on the second day as the first. How many cookies were sold the first day?

72. A football team gained 28 yards on one play. After the play, the team was given a 5 yard penalty. However, the next play, they gained 3 yards. How many total yards did they gain on the two plays?

73. If four times a number is increased by 3, the result is 51. Find the number.

74. If six times a number is decreased by 7, the result is 41. Find the number.

75. An elevator left the 12th floor, went up 5 floors, then down 7, and back up 2. On what floor is the elevator on now?

76. A submarine was 3000 feet below sea level. It rose 640 feet, went back down 1000 feet, and rose 1300 feet. Where is the submarine now?

Translate the verbal expression into an algebraic expression or equation. Then solve.

77. One fifth of a number is 76. Find the number.

78. One fourth of a number is 123. Find the number.

79. The perimeter of a rectangle is 168 inches. The width is 54 inches. Find the length.

80. The perimeter of a rectangle is 54 cm. The width is 3 cm. Find the length.

Evaluate:

81. For $x = -3$ and $y = 2$, find the value of x^2y^3 .

82. For $x = 3$ and $y = 2$, find the value of x^2y^3 .

83. For $x = -3$ and $y = 2$, find the value of $(x+y)^2$.

84. For $x = 3$ and $y = 2$, find the value of $(x+y)^2$.

Simplify.

85. $5^6 \cdot 5^8$

86. $9^2 \cdot 9^8$

87. $x^6 \cdot x^8$

88. $y^2 \cdot y^8$

89. $(x^6)^8$

90. $(y^2)^8$

91. $(xy^6)^8$

92. $(x^2y)^8$

93. $(-5x^6y)^4$

94. $(-4x^2y)^3$

95. $5x^6 \cdot 4x^8$

96. $9y^2 \cdot 2y$

97. $5x^6(4x)^3$

98. $9y^2(9y)^4$

99. $\left(\frac{3}{4}x^5\right)^3$

100. $\left(\frac{1}{5}y^2\right)^3$

101. $(5x^6y^8)^0$

102. $(-9x^2y^5)^0$

103. $\frac{x^6}{x^8}$

104. $\frac{y^2}{y^8}$

105. 5^{-2}

106. 9^{-6}

Simplify.

107. $(5-x) - (3x+5)$

108. $(2x+9) - (4+3x)$

109. $-7y(10y-7)$

110. $-10x(3x+3)$

111. $(x^2-4x+5)+(4x^2+6x-3)$

112. $(5x^2+4x-1)+(2x^2-6x-3)$

113. $(7x^3+5)+(4x^3+2x-1)$

114. $(5x^2+4x-1)-(2x^2-6x-3)$

Distribute:

115. $(n+2)(n-3)$

116. $(x-6)(x+7)$

117. $(b+4)(b-4)$

118. $(y+2)(y-2)$

119. $(q+6)^2$

120. $(z+9)^2$

121. $(w-8)^2$

122. $(p-5)^2$

123. $(3x+1)(x-4)$

124. $(3y+6)(2y+5)$

125. $(6z-4)(3z-7)$

126. $(x-4)(2x^2-x+5)$

127. $(x-1)(2x^2-6x-3)$

128. Given that the area of a triangle is one-half the base times the height, find the area of the triangle with a base of $(2x+4)$ and a height of $(x-3)$.

129. Given that the area of a rectangle is length times the width, find the area of the rectangle with a length of $(2x+4)$ and a width of $(x-3)$

Find the solution to the given equation.

130. $(5x+1)(x-3) = 0$

131. $(4x-2)(x+5) = 0$

132. $(x+5)^2 = 0$

133. $(x-7)^2 = 0$

134. $x(x+2)(x-4) = 0$

135. $7(x+5)(x-3) = 0$

136. $a(a+5) = 0$

137. $y(y-4) = 0$

138. $(7x-3)(x-4)(3x-7) = 0$

139. $(3x-5)(x-5)(4x-3) = 0$

Find the greatest common factor.

140. $3x^2 - 6x$

141. $7x^2 - 49x$

142. $10y^4 + 6y^3 + 14y$

143. $27x^4 + 9x^3 + 3x$

Factor completely.

144. $3x^3 - 27x$

145. $2x^2 - 50x$

146. $2y^4 - 2y^3 - 12y^2$

147. $4y^4 + 12y^3 - 40y^2$

148. $2y^2 - 16y + 32$

149. $3y^3 - 30y + 75$

Solve.

150. $y^2 - y - 12 = 0$

151. $y^2 + 10y + 21 = 0$

152. $y^2 - 7y = -10$

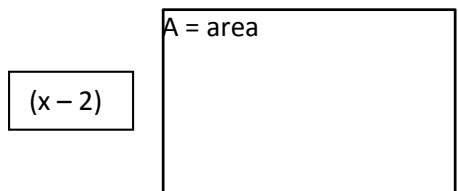
153. $y^2 - y - 12 = 0$

154. $y^2 - 6y = 0$

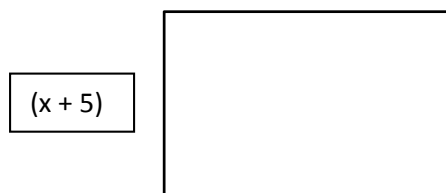
155. $y^2 - 8y = 0$

Use factoring to find an expression for the missing side of the rectable

156. $A = x^2 - 6x + 8$



157. $A = x^2 + 2x - 15$



For the following questions, find the factors by choose from these factors.

a. $(x+2)$ b. $(x+4)$ c. $(x-2)$ d. $(x-4)$

e. $(x+3)$ f. $(x+6)$ g. $(x-3)$ h. $(x-6)$

158. $x^2 - x - 12$

159. $x^2 - 16$

160. $x^2 - 4x - 12$

161. $x^2 + x - 12$

162. $x^2 + 4x - 12$

For the following questions, find the factors by choose from these factors.

a. $(x+5)$ b. $(3x+5)$ c. $(x-5)$ d. $(3x-5)$ e. $(3x+1)$

f. $(9x+1)$ g. $(3x-1)$ h. $(9x-1)$ i. $(3x+1)^2$

163. $9x^2 + 12x - 5$

164. $9x^2 + 6x + 1$

165. $9x^2 + 44x - 5$

166. $9x^2 - 44x - 5$

167. $9x^2 - 12x - 5$