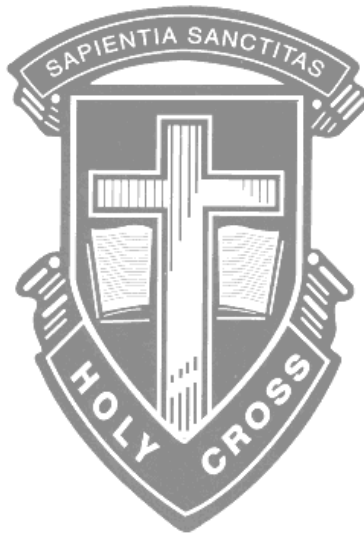


Honors Algebra 2 and Trigonometry

Summer Review Packet



This review packet is to be completed by all students who are enrolled in Honors Algebra 2 and Trigonometry for the 2010-2011 academic year. The completed packet must be submitted to your teacher on the Monday of the first full week of class. It will count as the first assessment for that course.

Name _____

Algebra Review Packet

The problems in this packet are intended to review what you should already know from an Algebra I Course. The skills selected are those that we will be using in the study of Honors Algebra II and Trigonometry. If you get stuck on any question you can ask another mathematics teacher for assistance or research the information on the Internet. This background information will appear at various times throughout this course and you will be expected to know it.

Part I: Polynomial Simplification

Simplify completely

1. $x^4 \cdot x^5$

2. $(5y^2)(6y^4)$

3. $(4j^2k^4l)(2j^3kl^8)$

4. $20x^2y^3(x^3 - 7y^3)$

5. $6x^2(x^4 - 2)$

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

7. $(9x^2y^3)^5$

8. $(4cd^2)(3c^2d^3)^2$

9. $(4ab^2c)^3(3a^2b)^2$

10. $\frac{x^5}{x^3}$

11. $\frac{a^2bc^4}{ab^5c^2}$

12. $\frac{x^{-2}y^{-1}z}{x^2y^{-1}z^{-3}}$

13. $\frac{k^3l^{-1}m^{-2}}{k^4l^2m^{-2}}$

14. $(x^{-2}yz^3)(x^2y^{-4}z^{-2})$

15. $\left(\frac{x^2}{y^3}\right)^{-2}$

16. $(5^{-2}a^{-2}b^4c)(5^{-3}a^4b^3c^{-2})$

17. $\left(\frac{6x^2y^{-1}}{3x^3y}\right)^{-3}$

18. $\left(\frac{10x^{-2}y^3z^{-1}}{4x^3y^{-3}z^{-1}}\right)^{-1}$

19. $2x^3 + 4x^2 + 3x - 3x^2 + 4x - 5x^3$

20. $(3x^2 + 3xy - 4y^2) - (2y^2 + 5yx - 3x^2)$

21. $x + 2y + 3xy + 4y - 5x$

22. $(3x^2 + 2xy - 4y^2) - (3y^2 + 5x^2 - xy)$

23. $2a^2b + 3a^3 - 5ab^2 + 7a^2b - b^3 + 6ab^2$

24. $(10x + 9y) + (5x^2 + 5xy - y^2)$

25. $2x(2x^2 - 2xy^2 + 3x^3y)$

26. $(2x + 3y)(2x + 3y)$

27. $(4x + 2)(3x - 4)$

28. $(3x - y)(3x + y)$

29. $(5a + 2b)(2a + 3ab - 6b)$

30. $(x + y)^2$

31. $(2x - 3y)^2$

32. $(3x + 2y)^3$

33. $(4x - 5y)^3$

Part II: Radicals

Please simplify the following radical expressions completely.

34. $\sqrt{196}$ 35. $\sqrt[3]{729}$ 36. $\sqrt[5]{16807}$ 37. $\sqrt{16a^2}$ 38. $\sqrt[3]{64b^3c^9}$ 39. $\sqrt[6]{15625x^6y^{24}}$

40. $\sqrt{54}$ 41. $\sqrt{448}$ 42. $\sqrt[3]{-250}$ 43. $\sqrt[3]{1372}$ 44. $\sqrt[4]{243}$ 45. $\sqrt{12a^3}$

46. $\sqrt{288a^3bc^4}$ 47. $\sqrt[3]{24a^4}$ 48. $\sqrt[3]{250x^2y^4z^8}$ 49. $\sqrt[5]{64a^3b^5c^{15}d^{19}}$

50. $\sqrt{-8}$ 51. $\sqrt{\frac{3}{5}}$ 52. $\sqrt{\frac{3}{9}}$ 53. $\sqrt{\frac{8}{x}}$ 54. $\sqrt{\frac{121}{a^3}}$ 55. $\sqrt{\frac{5}{8x}}$

56. $\sqrt[3]{\frac{1}{2}}$ 57. $\sqrt[3]{\frac{1}{4}}$ 58. $\sqrt[3]{\frac{-16}{x}}$ 59. $\sqrt[3]{\frac{3}{a^2}}$ 60. $\sqrt[3]{\frac{9}{18x^4}}$

61. $\sqrt{32} - 3\sqrt{50} + 2\sqrt{27}$

62. $5\sqrt{45} + 3\sqrt{24} - 4\sqrt{125} - 2\sqrt{96}$

63. $\sqrt[3]{24} - \sqrt[3]{16} + 2\sqrt[3]{375} + \sqrt[3]{128}$

64. $3\sqrt{x^3} + 2x\sqrt{x} - 3\sqrt{x^2}$

65. $\frac{5}{2}\sqrt{3} + \frac{2}{3}\sqrt{8} - \frac{4}{5}\sqrt{2} - \frac{3}{8}\sqrt{12}$

66. $(4 + \sqrt{3})(4 - \sqrt{3})$

67. $(\sqrt{6} + \sqrt{3})(\sqrt{6} - \sqrt{3})$

68. $(\sqrt{6} - \sqrt{10})(\sqrt{6} + \sqrt{10})$

69. $(\sqrt{5} + \sqrt{3})^2$

70. $(4\sqrt{2} - \sqrt{3})(5\sqrt{2} + 2\sqrt{3})$

71. $\frac{4 + \sqrt{2}}{4 - \sqrt{2}}$

72. $\frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}$

73. $\frac{\sqrt{6} + \sqrt{5}}{\sqrt{3} - \sqrt{7}}$

74. $\sqrt{\sqrt{25}}$

75. $\sqrt{\sqrt[3]{343}}$

76.) $\sqrt[3]{\sqrt{343}}$

77. $\sqrt[3]{\sqrt[4]{16777216}}$

Change the expression to a fractional exponent and simplify.

78. $\sqrt{6^5}$

79. $\sqrt{6^6}$

80. $\sqrt[3]{50^2}$

81. $\sqrt[5]{12^4}$

82. $\sqrt{\sqrt[3]{x^4}}$

Part III: Factoring

Please factor the following expressions completely.

83. 31500

84. 28800

85. 32400

86. 22932

87. $t^2 + 8t + 16$

88. $4x^3 - 4x$

89. $2x^2 + 6x - 20$

90. $2x^2 + 4x$

91. $3x^2 - 16x - 12$

92. $x^2 + 10x + 25$

93. $8x^3 - 2x$

94. $10x + 3x^2 + 8$

95. $3x^2 + 4x$

96. $-6x^2 + x + 15$

97. $4 + 25x^2 - 20x$

98. $34x^2 - 39 - 25x$

99. $24x^3 - 22x^2 - 10x$

100. $13x^2 - 10 - 21x$

101. $17x + 40x^2 - 12$

102. $x^2 + 3x - 40$

103. $6x^2 - 5x - 25$

104. $16x^2 - 4$

105. $81y^2 - 9$

106. $-12x^5 + 125x$

107. $1000x^3 + 1$

108. $y^3 + 64x^3$

109. $x^3 - 8$

110. $-8x^3 + 27y^3$

111. $4t^2 + 4t + 1$

112. $x^3 - x^2 + 2x - 2$

113. $x^2 + x - 2$

114. $5x^2 + 26x + 5$

115. $6 + 2x - 3x^3 - x^4$

116. $y^3 - 8$

117. $x^2 + 5x + 4x + 20$

118. $5y^2 + 4 + 2y + 10y$

119. $px - qy + py - qx$

120. $ax^2 - bx^2 + ay - by$

Part IV: Rational Expressions

Simplify the following Rational Expressions. Restrict the domain for 121-132

121. $\frac{12 + x - x^2}{2x^2 - 9x + 4}$

122. $\frac{6x^2 + 4x}{2x^2 + 4x}$

123. $\frac{y^2 + 3y + 2}{y^2 - 1}$

124. $\frac{10x^2 - 25xy + 15y^2}{7x^2 + 7xy - 14y^2}$

125. $\frac{x^2 + 8x - 20}{x^2 + 11x + 10}$

126. $\frac{z^3 - 8}{z^2 + 2z + 4}$

127. $\frac{(x - y)^2}{x + y} \cdot \frac{3x + 3y}{x^2 - y^2}$

128. $\frac{2x^2 + x - 6}{x^2 + 4x - 5} \cdot \frac{x^3 - 3x^2 + 2x}{4x^2 - 6x}$

129. $\frac{t^2 - t - 6}{t^2 + 6t + 9} \cdot \frac{t + 3}{t^2 - 4}$

130. $\frac{x^2 - 36}{x} \div \frac{x^3 - 6x^2}{x^2 + x}$

131. $\frac{x^2 - 36}{x} \div \frac{x^3 - 6x^2}{x^2 + x}$

132. $\frac{x^2 + 7x + 10}{2x - 4} \cdot \frac{x - 2}{x^2 - 3x - 10}$

133. $\frac{3}{8a} + \frac{5b}{3a^2} - \frac{2a}{9b}$

134. $\frac{x+1}{x^2-9} + \frac{1}{x+3}$

135. $\frac{x}{x^2-6x+8} - \frac{x}{x^2-5x+4}$

136. $\frac{2}{x^2+10x+25} - \frac{3}{x^2+7x+10}$

137. $\frac{\frac{2}{3} - \frac{5}{6}}{\frac{1}{3} + \frac{2}{9}}$

138. $\frac{3 - \frac{3}{5}}{\frac{7}{10} + \frac{3}{4}}$

139. $\frac{\frac{1}{x} - \frac{1}{y}}{\frac{y}{x} - \frac{x}{y}}$

140. $\frac{\frac{1}{x} + \frac{3}{5}}{\frac{1}{x+1}}$

141. $\frac{\frac{2}{x+2} - 1}{\frac{3}{x+3}}$

142. $\frac{\frac{5}{x^2-9}}{2 + \frac{1}{x+3}}$

143. $\frac{x^{-1} + y^{-1}}{(x-y)^{-1}}$

144. $\frac{a^{-2} - b^2}{a+b}$

145. $\frac{h + h^{-2}}{1 + h^{-1}}$

Part V: Word Problems

Please answer the following word problems. Be sure to identify your variables, show your equation, solve your equation, check your result and answer the question being asked.

146. James worked 2 hours daily after school, Monday through Friday. On Saturdays he works 8 h at \$2 more per hour than on weekdays. If he makes \$142 per week, how much does he work per hour on weekdays?

147. The Eiffel Tower is 497 ft taller than the Washington Monument. If each of the monuments were 58 ft shorter, the Eiffel Tower would be twice as tall as the Washington Monument. How tall is each?

148. The sum of three consecutive integers is double the largest number. What are the numbers?

149. It took John 2.5 hours to run from Cinnaminson to Burlington Township at a constant speed. The return trip only took 2 hours because he increased her speed by 3 km/h. How fast was she running from Cinnaminson to Burlington Township?
150. A rectangular garden is twice times as long as it is wide and is surrounded by a brick walk 1.5m wide. Find the dimensions of the garden if the area of the walk is 171 m^2 .
151. Mrs. Jones had driven for 2 hours at a constant speed when road repairs forced him to reduce his speed by 10 mi/h for the remaining hour of the 152 mi trip. Find Mrs. Jones' original speed.
152. A house has two rooms of equal area. One room is square and the other room is a rectangle 5 ft narrower and 6ft longer than the square one. Find the area of each room
153. You rent a car for \$37.50 per day and \$0.37 per mile. You keep the car for 8 days and drive it for 325 kilometers. Model the total cost with a linear equation and use the equation to determine the total cost.