



Success Center Practice Sheet

Math 97 Review

Solve.

1. $11x - 14x - 7 + 8 = 4x + 5 - 2$
2. $-\frac{4}{3}x + 5 = 7$
3. $5z - 2(3 - 3z) = 4(z - 2) - 7$
4. $\frac{3k}{2} + \frac{4k}{7} = -5$

Solve for b in #5, and F in #6.

5. $P = a + b + c$
6. $C = \frac{5}{9}(F - 32)$

Solve the word problems.

7. Suppose the length of a rectangle is 7 inches longer than twice the width. What are the dimensions of the rectangle if the perimeter is 74 inches?
8. Joe wishes to make \$235,000 selling his home. If his realtor must earn a 6% commission, for what price should Joe sell his home?
9. Eric's piggy bank has quarters and nickels in it. The total number of coins in the bank is 50. The total value is \$8.90. Determine the number of each.
10. How many ounces each of 20% acid and 50% acid must be mixed together to get 120 ounces of 30% acid?
11. A 50-pound box of nuts worth \$4 a pound is formed by mixing peanuts worth \$3.50 a pound and cashews worth \$5.50 a pound. How many pounds of each are needed?
12. Two trains start at the same point going in the same direction on parallel tracks. One travels 70mph the other 42mph. How long will it take for the two trains to be 154 miles apart?

Solve each inequality and graph the solution on a number line.

13. $6x < 7x - 3$
14. $2 \leq -3y + 2y$

Determine:

15. Find the union between sets $\{0,1,2,3\}$ and $\{2,3,4,5\}$
16. Find the intersection between sets $\{-6,-5,-4\}$ and $\{-3,-2,-1\}$

Give solution in interval notation.

17. $x - 5 > 0$ or $x + 7 < 6$
18. $3 < 4m + 2$ and $7m - 5 \leq 2$

Solve.

19. $|m + 6| = 2$
20. $|x + 5| < 8$
21. $|2x - 1| > 7$

Find the x and y intercepts

22. $5x + 2y = 10$
23. $3x - 2y = -12$

Find the slope.

24. Passing through (5,7) and (7,9)
25. Passing through (3,-6) and (-2, 6)
26. Passing through (5,-4) and (0,0)
27. $x + y = 4$
28. $3x - 2y = 12$
29. $x = -3$
30. Perpendicular to $4x + 5y = 8$
31. Parallel to $2x + 6y = 5$

Find the equation.

32. With slope 2 and y-intercept (0,-5)
33. With slope -3 and passing through (4, -7)
34. Parallel to $3x = 2$, passing through (-6, 5)
35. Perpendicular to $5x + y = 8$, passing through (2, -1)

Graph

36. $y = 2x - 3$
37. $2x + 5y = 10$
38. $y \leq -\frac{2}{3}x + 4$
39. $x - 2y < 4$

Graph the intersection

40. $x + y > -1$ and $y < 2$

Evaluate

41. $f(-2)$ for $f(x) = 6 - 2x$
42. $f(4)$ for $f(x) = x^2 - 2x$
43. $f(x+1)$ for $f(x) = \frac{2x+1}{5}$
44. $f(g(3))$ if $f(x) = x + 5$ and $g(x) = 2x - 4$

Solve each.

45. If x varies directly as y, and $x = 12$ when $y = 3$, find x when $y = 15$
46. If y varies inversely as x, and $y = 6$ when $x = 2$, find y when $x = 3$.

Determine the domain.

47. $y = \sqrt{x - 3}$

48. $y = 42x$

49. $y = \frac{1}{x+2}$

50. $y = |2x - 1| + 3$

Solve the system

51. $x + y = 3$

$x - y = -1$

52. $x + 2y = 0$

$2x + y = -6$

53. $4x - y = -7$

$y = -3x$

54. $4x + 5y = 13$

$3x - 4y = 2$

55. $3x - 4z = -23$

$y + 5z = 24$

$x - 3y = 2$

56. $2x + y - z = 9$

$x + 2y + z = 3$

$3x + 3y - z = 14$

Evaluate (write only with positive exponents)

57. $4x^0$

58. 7^{-2}

59. $(1/4)^{-1}$

60. $k^{-5}k^5$

61. $-4^2(4^{-3})$

62. $p^2p^8p^{-4}$

63. $m^{-2}(3m^3)$

64. $\frac{2}{2^{-2}}$

65. $(-3x^4)^{-3}$

66. $(\frac{5}{6})^{-1}$

67. $(2x^2y)^3(3xy^3)^2$

68. $\frac{12x^4y^3}{-3x^{-1}y^2}$

69. $\frac{4a^2b^3}{-8a^3b^5}$

70. $\frac{6a^4b^7}{8ab^9}$

Identify each as trinomial, binomial, monomial, or none and determine the degree.

71. $y^2 + 3$

72. 7

73. $2m$

74. $-5x + 4$

75. $4z^2 + 3z - 5$

Perform the indicated operation.

76. $(14x - 8) + (3x + 11)$

77. $(3x^2 + 4x + 2) + (7x^2 - x + 2)$

78. $6y - \{3y - [3y - (6y - 9y)]\} + 7y - 2(6y - 3y)$

79. $4a(5a)$

80. $8x^2y(9xy^3)$

81. $(4r - 2)(6r + 1)$

82. $(6a - 5)(3a + 2)$

83. $(2z + 3)(2z - 3)$

84. $(p - 7)^2$

85. $(5m + 2n)^2$

86. $(2p - 5q)(2p + 7q)$

Factor.

87. $15x - 15y$

88. $48r^2 + 16r^5$

89. $(x + 2)(2x + 3) - (x + 2)(x + 1)$

90. $x - 8y^2 + 2xy^2 - 4$

91. $-3x - 6 + 2y + xy$

92. $(3x - 2)(3x + 1) - 2(3x + 1)$

93. $x^3 - x^2 + x - 1$

94. $a^2 - 2a - 35$

95. $r^2 - 6r - 16$

96. $6m^2 - 13mn - 5n^2$

97. $12m^2 + 11m - 5$

98. $9x^2 - 6xy + y^2$

99. $s^4 - 16$

100. $x^3 - y^3$

101. $27r^3 + 8s^3$

102. $x + 3x + y + 3y$

103. $1 - y + z - yz$

104. $4x^2 - 9$

Solve the Equation.

105. $2k^2 + 3k - 9 = 0$

106. $16x^2 - 25 = 0$

107. $6x^2 - 5x = 6$

108. $3x^2 = 2x$

Perform the operation and/or simplify to its lowest terms.

109. $\frac{x^2-9}{x^2+6x+9}$

110. $\frac{a^2-25}{a^2+6a+5}$

111. $\frac{2x^3-8x^2+8x}{6x^2-12x}$

112. $\frac{9x^2}{16} \cdot \frac{4}{3x}$

113. $\frac{m+3}{2} \cdot \frac{12}{(m+3)^2}$

114. $\frac{x^2-x-6}{x^2-2x-8} \cdot \frac{x^2+7x+12}{x^2-9}$

115. $\frac{8-y}{y-8} \div \frac{y-8}{y+8}$

116. $\frac{s^2+s-2}{s^2+3s-4} \div \frac{s+2}{s+3}$

117. $\frac{3}{x} + \frac{8}{x}$

118. $\frac{r}{r^2-s^2} + \frac{s}{r^2-s^2}$

119. $\frac{5x+6}{2y} - \frac{-3x+2}{2y}$

120. $\frac{3}{y} + \frac{1}{2}$

121. $\frac{3r+4}{3} + \frac{6r+4}{6}$

122. $\frac{3x+4}{2a} - \frac{x-8}{2a}$

123. $\frac{2xy^2}{ab^3} \cdot \frac{5a^3b^5}{8xy^3}$

124. $\frac{8x^3y}{27xy^3} \div \frac{16x^3y}{45y}$

125. $\frac{2c}{c^2-16} + \frac{4c+1}{c+4}$

126. $\frac{5}{x+2} - \frac{3}{x+1}$

127. $\frac{16-y^2}{y^2-11y+30} \cdot \frac{2y-10}{2y^2-8y}$

128. $\frac{a^2-9b^2}{4a^2+12ab} \div \frac{a^2-ab-6b^2}{12ab}$

129. $\frac{q+2}{q} + \frac{q}{q+2}$

130. $\frac{10x}{2x^2+x} + \frac{5}{2x^2+x}$

131. $\frac{x^2}{x-4} + \frac{16}{4-x}$

132. $\frac{\frac{x+1}{x}}{\frac{x+1}{y}}$

133. $\frac{\frac{\frac{3}{k}+1}{3+k}}{2}$

134. $\frac{120a^{11}-60a^{10}+140a^9}{10a^2}$

135. $\frac{5y^6+15y^4-5y^2}{5y^2}$

136. $\frac{4a^3-5a^2+2a-16}{a-2}$

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

Solve each equation.

138. $\frac{x}{2x+2} = \frac{-2x}{4x+4} + \frac{2x-3}{x+1}$

139. $\frac{2p}{7} - 5 = p$

140. $\frac{8t+3}{t} = 3t$

141. $\frac{3}{r+1} - \frac{1}{r-1} = \frac{2}{r^2-1}$

142. $\frac{x}{x-2} = \frac{x+4}{x}$

143. $\frac{3x}{x-5} = \frac{15}{x-5} + 2$

Simplify.

144. $27^{\frac{1}{3}}$

145. $-81^{\frac{5}{4}}$

146. $1000^{\frac{2}{3}}$

147. $216^{\frac{-2}{3}}$

148. $r^{\frac{1}{3}} \cdot r^{\frac{1}{3}}$

149. $\frac{w^{\frac{7}{4}} \cdot w^{\frac{-1}{2}}}{w^{\frac{5}{4}}}$

150. $6b^{\frac{7}{6}}(b^{\frac{-2}{3}} - b^{\frac{-7}{6}})$

151. $(6^{\frac{2}{3}})^6$

152. $\sqrt{3}\sqrt{11}$

153. $\sqrt{6}\sqrt{r}$

154. $\sqrt[4]{8}\sqrt[4]{15}$

155. $\sqrt[4]{81x^8t^5}$

156. $\sqrt[3]{a^4b^5c^6}$

157. $\sqrt{42}$

158. $\sqrt[3]{4}\sqrt{2}$

159. $\sqrt{\sqrt{3}}$

160. Find the hypotenuse of a right triangle whose legs measure 10 and 24.

161. Find the distance between (7,3) and (-8,6)

Simplify each expression.

162. $2\sqrt{7} + 3\sqrt{7}$

163. $\sqrt{100x} - \sqrt{9x} + \sqrt{25x}$

164. $2\sqrt{8} + 4\sqrt{50} + 3\sqrt{18}$

165. $(3 + \sqrt{2})(2 + \sqrt{7})$

166. $(\sqrt{5} + 1)(\sqrt{5} - 1)$

167. $\sqrt{\frac{27}{48}}$

168. $\frac{5}{7-\sqrt{3}}$

Solve each equation.

169. $\sqrt{9c + 9} = 9$

170. $\sqrt{t} = -6$

171. $\sqrt{2x + 3} - 5 = 0$

172. $\sqrt{r^2 + 2r - 10} = r$

173. $\sqrt{x + 2} - \sqrt{x - 3} = 1$

174. $\sqrt[4]{3k + 2} + 2 = 0$

175. $\sqrt[3]{4x - 4} = 4$

Perform the operation and write in standard form $a + bi$.

176. $-\sqrt{-125}$

177. $\sqrt{-5}\sqrt{-10}$

$$178. -3i + (3 + 3i)$$

$$179. (-2 + 3i) - (5 + i)$$

$$180. (1 + 3i)(1 + 3i)$$

$$181. (6 + i)(4 + i)$$

$$182. i^{124}$$

$$183. i^{11}$$

$$184. \frac{5+2i}{3-4i}$$

$$185. \frac{2-i}{4i}$$

$$186. \frac{1}{-i}$$

Solve using the square root property.

$$187. (2a + 6)^2 = 12$$

$$188. (3y - 9)^2 = -72$$

Solve by completing the square

$$189. a^2 - 6a - 16 = 0$$

$$190. 2a^2 + 4a = 5$$

Solve using the quadratic formula

$$191. y^2 + 3y - 28 = 0$$

$$192. 4a^2 + 4a = 1$$

$$193. 3a^2 + 4a = -2$$

Identify the vertex and sketch the graph

$$194. y = x^2 - 3$$

$$195. y = (x + 2)^2$$

$$196. y = (x - 2)^2 + 1$$

$$197. y = x^2 - 2x + 4$$

$$198. y = -3(x - 1)^2 + 5$$

$$199. x = (y + 1)^2 + 2$$

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Math 97 Review

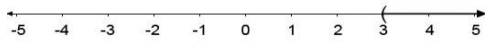
ANSWERS

- $x = -\frac{2}{7}$
- $x = -\frac{3}{2}$
- $z = -\frac{9}{7}$
- $k = -\frac{70}{29}$
- $b = P - a - c$
- $F = \frac{9}{5}C + 32$
- width = 10 in., length = 27in.
- Sell for \$250,000
- 32 Quarters, 18 Nickels
- 80 oz. of the 20% and 40 oz. of the 50%
- 37.5 lb. of the \$3.50 kind and 12.5 lb. of the \$5.50 kind.
- 5.5 hours
- $x > 3$ see graph
- $y \leq -2$ see graph
- $\{0,1,2,3,4,5\}$
- \emptyset
- $(-\infty, -1) \cup (5, \infty)$
- $(\frac{1}{4}, 1]$
- $m = -4$ or $m = -8$
- $-13 < x < 3$
- $x > 4$ or $x < -3$
- y-intercept (0,5) and x-intercept (2,0)
- y-intercept(0,6) and x-intercept(-4,0)
- $m=1$
- $m = -\frac{12}{5}$
- $m = -\frac{4}{5}$
- $m = -1$
- $m = \frac{3}{2}$
- m is undefined.
- $m = \frac{5}{4}$
- $m = -\frac{1}{3}$
- $y = 2x - 5$
- $y = -3x + 5$
- $x = -6$
- $x - 5y = 7$
- thru 40. see graphs
- 10
- 8
- $\frac{2x+3}{5}$
- 7
- $x = 60$
- $y = 4$
- $[3, \infty)$
- $(-\infty, \infty)$
- $(-\infty, -2) \cup (-2, \infty)$
- $(-\infty, \infty)$
- $x = 1, y = 2$
- $x = -4, y = 2$
- $x = -1, y = 3$
- $x = 2, y = 1$
- $x = -1, y = -1, z = 5$
- $x = 3, y = 1, z = -2$
- 4
- $\frac{1}{49}$
- 4
- 1
- $-\frac{1}{4}$
- p^6

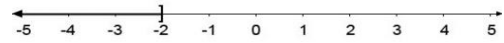
63. $3m$
64. 8
65. $-\frac{x^{12}}{27}$
66. $\frac{6}{5}$
67. $72x^8y^9$
68. $-4x^5y$
69. $\frac{-1}{2ab^2}$
70. $\frac{3a^3}{4b^2}$
71. Binomial, degree 2.
72. Monomial, degree 0.
73. Monomial, degree 1.
74. Binomial, degree 1.
75. Trinomial, degree 2.
76. $17x + 3$
77. $10x^2 + 3x + 4$
78. $10y$
79. $20a^2$
80. $72x^3y^4$
81. $24r^2 - 8r - 2$
82. $18a^2 - 3a - 10$
83. $4z^2 - 9$
84. $p^2 - 14p + 49$
85. $25m^2 + 20mn + 4n^2$
86. $4p^2 + 4pq - 35q^2$
87. $15(x - y)$
88. $16r^2(3 + r^3)$
89. $(x + 2)^2$
90. $(x - 4)(2y^2 + 1)$
91. $(x + 2)(y - 3)$
92. $(3x + 1)(3x - 4)$
93. $(x - 1)(x^2 + 1)$
94. $(a - 7)(a + 5)$
95. $(r - 8)(r + 2)$
96. $(3m+n)(2m-5n)$
97. $(4m + 5)(3m - 1)$
98. $(3x - y)^2$
99. $(s - 2)(s + 2)(s^2 + 4)$
100. $(x - y)(x^2 + xy + y^2)$
101. $(3r + 2s)(9r^2 - 6rs + 4s^2)$
102. $4(x + y)$
103. $(1 - y)(1 + z)$
104. $(2x - 3)(2x + 3)$
105. $k = \frac{3}{2}, -3$
106. $x = \frac{5}{4}, -\frac{5}{4}$
107. $x = \frac{3}{2}, -\frac{2}{3}$
108. $x = 0, \frac{2}{3}$
109. $\frac{x-3}{x+3}$
110. $\frac{a-5}{a+1}$
111. $\frac{x-2}{3}$
112. $\frac{3x}{4}$
113. $\frac{6}{m+3}$
114. $\frac{x-4}{x-4}$
115. $-\frac{y+8}{y-8}$
116. $\frac{s+3}{s+4}$
117. $\frac{11}{x}$
118. $\frac{1}{r-s}$
119. $\frac{4x+2}{y}$
120. $\frac{6+y}{2y}$
121. $2r + 2$
122. $\frac{x+6}{a}$
123. $\frac{5a^2b^2}{4y}$
124. $\frac{5}{6xy^2}$
125. $\frac{4c^2-13c-4}{c^2-16}$
126. $\frac{2x-1}{(x+2)(x+1)}$
127. $\frac{-4-y}{y(y-6)}$
128. $\frac{3b}{a+2b}$
129. $\frac{2(q^2+2q+2)}{q(q+2)}$

130. $\frac{5}{x}$
 131. $x+4$
 132. $\frac{y}{x}$
 133. $\frac{2}{k}$
 134. $12a^9 - 6a^8 + 14a^7$
 135. $y^4 + 3y^2 - 1$
 136. $4a^2 + 3a + 8$
 137. $y^2 - y + 1 - \frac{2}{y+1}$
 138. $x=3$
 139. $p = -7$
 140. $t = 3, -\frac{1}{3}$
 141. $r=3$
 142. $x=4$
 143. No solution
 144. 3
 145. -243
 146. 100
 147. $\frac{1}{36}$
 148. $r^{\frac{2}{3}}$
 149. 1
 150. $6b^{\frac{1}{2}} - 6$
 151. 1296
 152. $\sqrt{33}$
 153. $\sqrt{6r}$
 154. $\sqrt[4]{120}$
 155. $3x^2t^4\sqrt{t}$
 156. $abc^2\sqrt[3]{ab^2}$
 157. $\sqrt{42}$
 158. $2^{\sqrt{2}}$
 159. $\sqrt[4]{3}$
 160. 26
 161. $\sqrt{234}$
 162. $5\sqrt{7}$
 163. $12\sqrt{x}$
 164. $33\sqrt{2}$
 165. $6 + 3\sqrt{7} + 2\sqrt{2} + \sqrt{14}$
 166. 4
 167. $\frac{3}{4}$
 168. $\frac{35+5\sqrt{3}}{46}$
 169. $c=8$
 170. No Solution.
 171. $x=11$
 172. $r=5$
 173. $x=7$
 174. No Solution.
 175. $x=17$
 176. $-5i\sqrt{5}$
 177. $-5\sqrt{2}$
 178. 3
 179. $-7 + 2i$
 180. $-8 + 6i$
 181. $23 + 10i$
 182. 1
 183. $-i$
 184. $\frac{7}{25} + \frac{26}{25}i$
 185. $-\frac{1}{4} - \frac{1}{2}i$
 186. i
 187. $a = -3 \pm \sqrt{3}$
 188. $y = 3 \pm 2i\sqrt{2}$
 189. $a = 8, -2$
 190. $a = \frac{-2 \pm \sqrt{14}}{2}$
 191. $y = -7, 4$
 192. $a = \frac{-1 \pm \sqrt{2}}{2}$
 193. $a = \frac{-2 \pm i\sqrt{2}}{3}$
 194. (0,-3) see graph
 195. (-2,0) see graph
 196. (2,1) see graph
 197. (1,3) see graph
 198. (1,5) see graph
 199. (2,-1) see graph

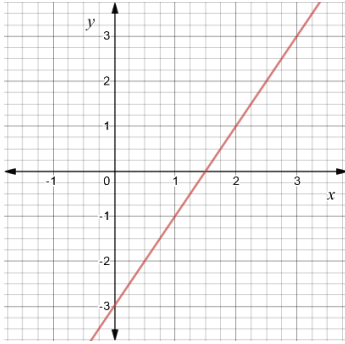
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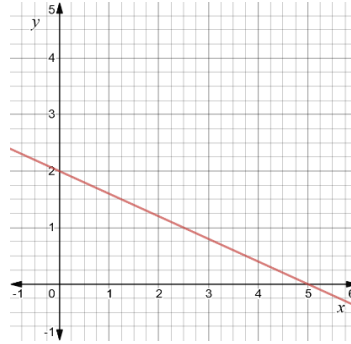
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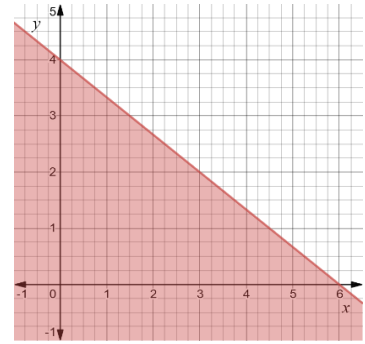
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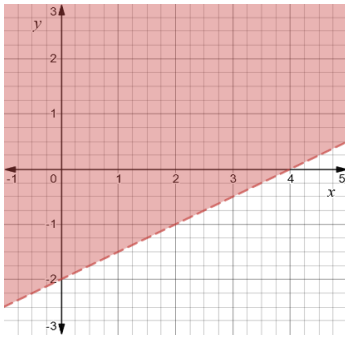
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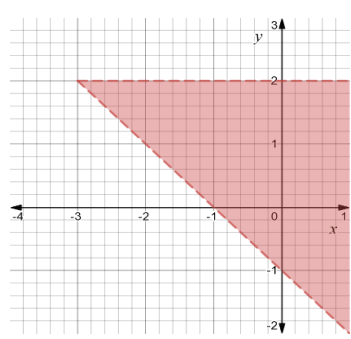
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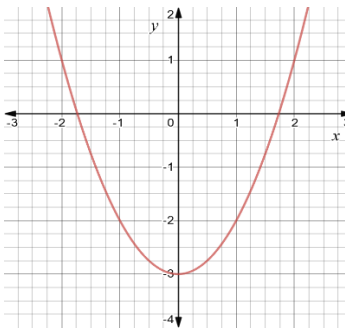
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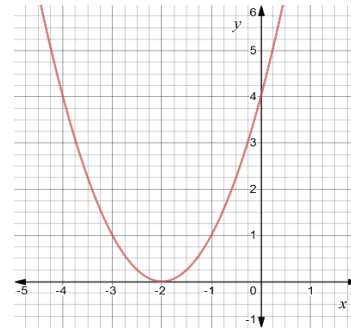
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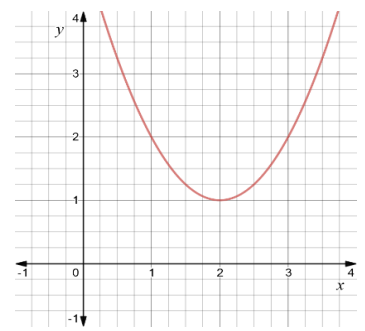
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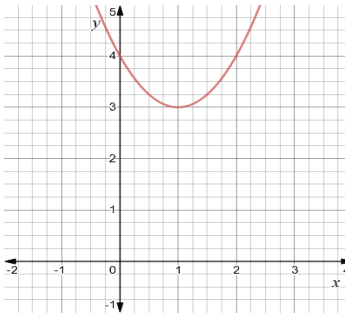
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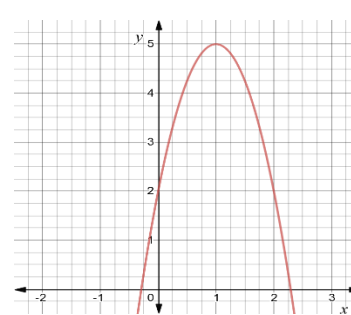
196.



197.



198.



199.

