

Answers to Sample Problem for College Prep Math

1. -8

2. -11

3. 6

4. -4

5. $\frac{3}{4}$

6. $\frac{4}{3}$

7. $\frac{1}{60}$

8. $-\frac{39}{44}$

9. -7.28

10. -10.136

11. -7.245

12. 4900

13. -109

14. 137

15. -36

16. 1

17. 28

18. 60

19. 2

20. Undefined

21. 1

22. 15

23. -42

24. -19

25. 14

26. 8

27. $-z+2$

28. $\frac{11}{15}x$

29. $-5y^2+4y$

30. $-5x+1$

31. $-14x+3$

32. $\frac{29}{12}x+\frac{7}{6}$

33. $\{-7\}$

34. $\{6\}$

35. $\left\{\frac{7}{2}\right\}$

36. $\{4\}$

37. \emptyset

38. $\left\{-\frac{13}{3}\right\}$

39. $\{-8\}$

40. $\left\{\frac{8}{3}\right\}$

41. $\left\{\frac{35}{3}\right\}$

42. $\{8\}$

43. Infinitely many solutions

44. $\{3\}$

45. $\{7\}$

46. $\{6\}$

47. $\left\{-\frac{9}{2}\right\}$

48. $\{50\}$

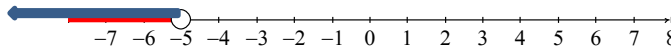
49. $x \geq 7$
 $[7, \infty)$



50. $x > 9$
 $(9, \infty)$



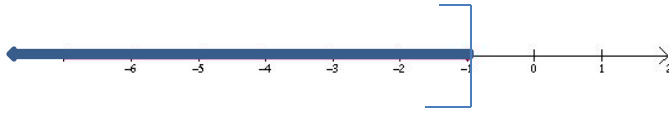
51. $x < -5$
 $(-\infty, -5)$



52. $x > 5$
 $(5, \infty)$



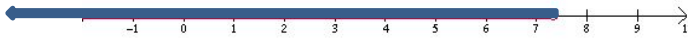
53. $x \leq -1$
 $(-\infty, -1]$



54. $x > 8$
 $(8, \infty)$

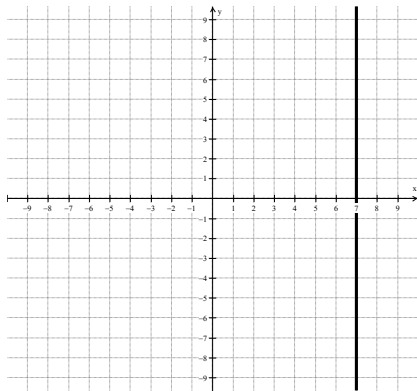


55. $x < \frac{22}{3}$
 $(-\infty, \frac{22}{3})$

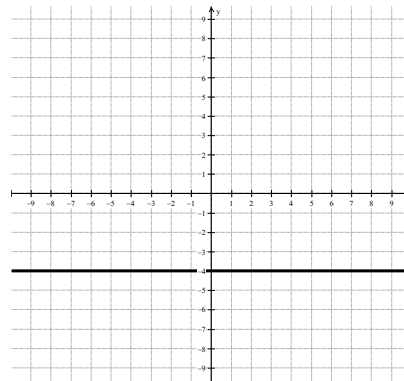


56. \emptyset

57.



58.

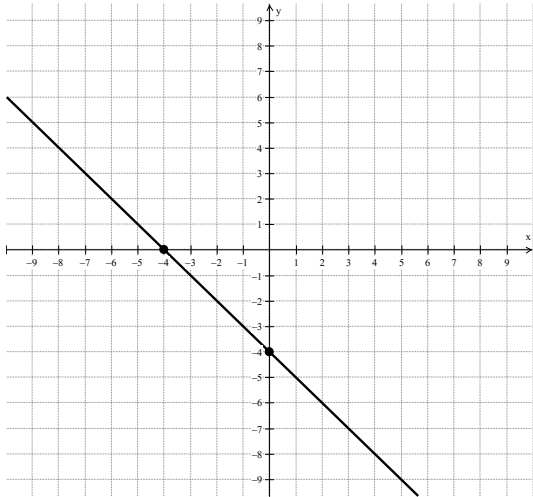


59. $y = 1$

60. $x = -2$

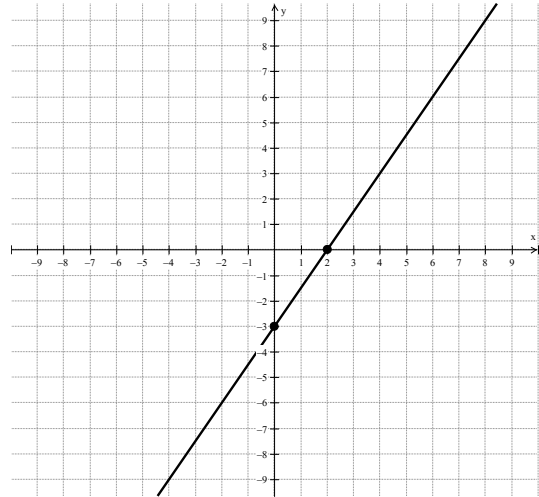
61. x -intercept $(-4, 0)$

y -intercept $(0, -4)$



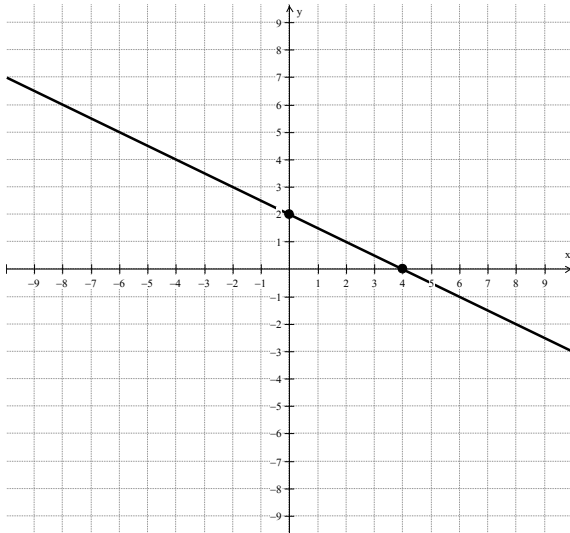
62. x -intercept $(2, 0)$

y -intercept $(0, -3)$



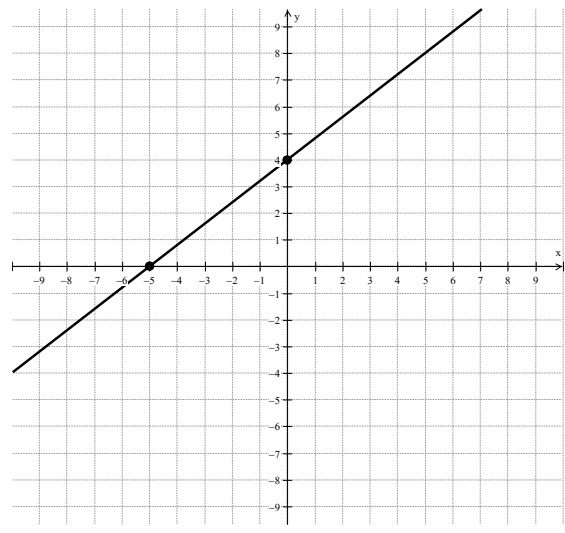
63. x -intercept $(4, 0)$

y -intercept $(0, 2)$



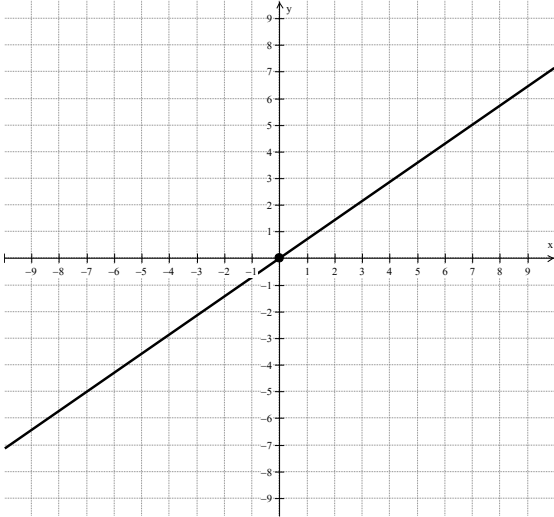
64. x -intercept $(-5, 0)$

y -intercept $(0, 4)$



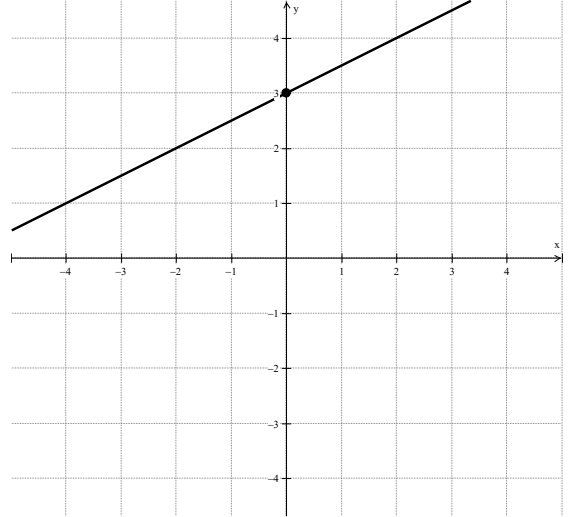
65. y-intercept (0,0)

$$\text{Slope } m = \frac{5}{7}$$



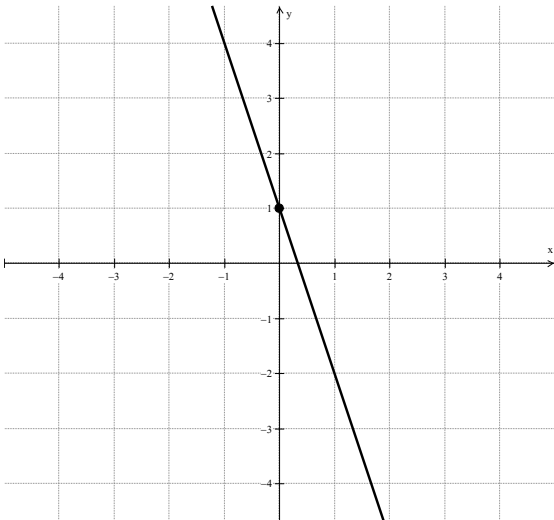
66. y-intercept (0,3)

$$\text{Slope } m = \frac{1}{2}$$



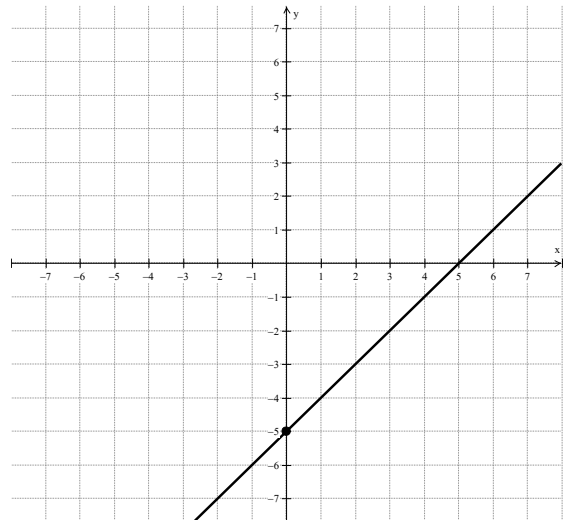
67. y-intercept (0,1)

$$\text{Slope } m = -3$$



68. y-intercept (0,-5)

$$\text{Slope } m = 1$$



69. $y = 3x - 5$

70. $y = -\frac{5}{2}x - 5$

71. $y = -7$

72. $x = 3$

73. $y = -3x + 1$

74. $y = -\frac{3}{2}x + 1$

75. $y = \frac{3}{2}x - 13$

76. $y = -\frac{5}{3}x$

77. $(2, -1)$

78. \emptyset

79. $(2, 5)$

80. Infinitely many solutions

81. \emptyset

82. $\left(\frac{73}{23}, \frac{3}{23}\right)$

83. a^{10}

84. $45y^{10}$

85. $12w^7$

86. 4^3

87. $3rs$

88. $\frac{1}{m^2}$

89. $\frac{x^4}{y^4}$

90. $\frac{t^{10}}{324x^5}$

91. $-12x^3y^5$

92. $\frac{5y^6}{x^2}$

93. $13z^8$

94. $x^2 + 12x - 9$

95. $-\frac{1}{2}y^2 + \frac{19}{10}y + 6$

96. $6x^4 - 15x^3 + 3x^2$

97. $x^2 + 10x + 21$

98. $3x^2 - 7x - 20$

99. $15a^2 - 14ab - 16b^2$

100. $x^3 + 7x^2 + 19x + 21$

101. $x^2 - 16$

102. $4y^2 - 20y + 25$

103. $16x^2 - 25y^2$

104. $16x^2 + 2x + \frac{1}{16}$

105. $\frac{1}{2}z^2 - \frac{1}{4}z + \frac{3}{8}$

106. $x - 3 + \frac{2}{x}$

107. $5(x+3)$
108. $9x(3x+1)$
109. $6m^2n(3m^2+4n-2mn^3)$
110. $(2b+7)(3a-5)$
111. $(a+14)(x+y)$
112. $(8x^2-5)(x+2)$
113. $(x+4)(x+9)$
114. $(x+8)(x-7)$
115. $(x+3y)(x+8y)$
116. $-3(p+2)(p+5)$
117. $(3q+2)(q+2)$
118. $(5x+7)(5x+2)$
119. $3(3x-2)(2x+1)$
120. $(3x-2y)(x+2y)$
121. $-3x(x-2)(x-6)$
122. Prime
123. $(x-3)(x+3)$
124. $(6m-5n)(6m+5n)$
125. Prime
126. $(x-3)^2$
127. $(4y-9)^2$
128. $(2x+1)(4x^2-2x+1)$
129. $(2x-3y)(4x^2+6xy+9y^2)$
130. $(x+2)(x+16)$
131. $\{-9, 7\}$
132. $\left\{-\frac{7}{3}, 2\right\}$
133. $\{-3, 10\}$
134. $\{-5, 10\}$
135. $\left\{\frac{-5}{4}, \frac{5}{4}\right\}$
136. $\left\{-5, -\frac{2}{3}, 11\right\}$
137. $\left\{0, \frac{7}{2}\right\}$
138. $\{-5, -3, 3\}$
139. $\frac{3y}{y-2}$
140. $-2x$
141. $\frac{3}{x^2}$
142. $\frac{y+2}{y-5}$

143. $\frac{x-6}{2x(x+7)}$

144. $\frac{x+4y}{x-3y}$

145. $\frac{1}{6x(x+1)}$

146. 1

147. $\frac{3x}{x-4}$

148. $\frac{x}{4y^2(x-2y)}$

149. $\frac{3x+4}{x-6}$

150. 1

151. $\frac{3x-2}{x-4}$

152. $\frac{p-7}{p-4}$

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

154. $\frac{-13x+6}{(x-6)^2(x+6)}$

155. $\frac{x^2+3x+5}{(x+2)^2(x-1)}$

156. $\frac{x^2-5x+9}{2(2x-3)(x+1)}$

157. $\{-3\}$

158. $\left\{\frac{37}{9}\right\}$

159. \emptyset

160. $\left\{-\frac{1}{2}, \frac{2}{3}\right\}$

161. $\{7\}$

162. $\{-11, 14\}$

163. $\{-16\}$

164. $\{4, 6\}$

165. 4

166. -5

167. -27

168. $\frac{1}{25}$

169. $(6y)^{\frac{1}{3}}$

170. $x^{\frac{3}{7}}$

171. $3\sqrt{2}$

172. $2\sqrt[3]{5}$

173. $2ab^3\sqrt{2a}$

174. 30

175. $2xy\sqrt[5]{3x}$

177. 3

179. $10\sqrt{5x}$

181. $3\sqrt{5x} - 5x\sqrt{7}$

183. $64 - 13\sqrt{14}$

185. $30\sqrt{7}$

187. $\frac{7\sqrt{3}}{3}$

189. $\frac{\sqrt{7} + \sqrt{3}}{4}$

191. $6 - \sqrt{5}i$

193. $72 + 32i$

195. $-20 + 48i$

197. $18 - 66i$

199. $-\frac{5}{8} - \frac{5}{8}i$

201. $\{-2\}$

203. $\{4\}$

205. $\left\{0, \frac{1}{9}\right\}$

207. $\left\{-\frac{7}{2}, \frac{1}{2}\right\}$

209. $\left\{\frac{3}{2} - \frac{\sqrt{11}}{2}i, \frac{3}{2} + \frac{\sqrt{11}}{2}i\right\}$

176. $7\sqrt{2}$

178. $4y^3\sqrt{3}$

180. $7\sqrt{2}$

182. $-85 + 3\sqrt{6}$

184. $15x^3\sqrt{2x}$

186. $-8x^3\sqrt{2x}$

188. $\frac{\sqrt{2x}}{4}$

190. $8 + 6i$

192. $-4 - 15i$

194. $61i$

196. -12

198. i

200. $\{14\}$

202. $\{3\}$

204. $\{-6, 3\}$

206. $\{-4, 4\}$

208. $\{-5 - \sqrt{6}, -5 + \sqrt{6}\}$

210. $\left\{-1 - \frac{\sqrt{3}}{2}i, -1 + \frac{\sqrt{3}}{2}i\right\}$

211. $\left\{-\frac{1}{3}-\frac{\sqrt{22}}{3}, -\frac{1}{3}+\frac{\sqrt{22}}{3}\right\}$
212. $\left\{1-\frac{\sqrt{3}}{2}, 1+\frac{\sqrt{3}}{2}\right\}$
213. $\left\{\frac{1}{3}\right\}$
214. $\left\{-\frac{8}{3}, 1\right\}$
215. $\left\{\frac{5}{2}\right\}$
216. $\left\{\frac{1}{3}, 3\right\}$
217. $\left\{-1, \frac{7}{3}\right\}$
218. $\{-3, -1\}$
219. \emptyset
220. No, Domain $\{-2\}$,
Range $\{3, 1, -3, 9\}$
221. Yes, Domain $\{-5, -2, 5, 7\}$
Range $\{3, 1, -3\}$
222. No, Domain $\{A, B, C, D\}$
Range $\{6, 5, 4, 3.5, 1\}$
223. Yes
224. No
225. Yes
226. No
227. Yes
228. No
229. Yes
230. 12
231. $-3x-4$
232. -27
233. $3x+4$
234. a) 4 b) $x=1$
c) -1 and 3 d) $(-\infty, \infty)$
e) $[-4, \infty)$
235. The number is 8
236. The numbers are 38, 40, 42, 44, and 46.
237. The student needs a final exam score of 87.
238. The total bill, including tax, is \$700.92.
239. The original price was \$450.
240. You receive \$97.50 and your friend receives \$82.50.
241. Bob's new hourly fee is \$32.55.
242. There are 17 nickels and 12 dimes in the jar.
243. The width is 8 inches and the length is 31 inches.
244. The two numbers are 14 and 37.
245. There are 353 calories in the sandwich and 212 calories in the cookie.
246. Five children tickets and eight adult tickets were purchased.

247. Ann should invest \$3,500 at 9% and \$1,500 at 4.5%.
248. Mix 30 ml of 40% hydrochloric acid and 60 ml of 25% hydrochloric acid.
249. The width is 8 inches and the height is 15 inches.
250. At 3 seconds the rocket will be 144 feet high.
251. The guy wire is $8\sqrt{26}$ feet long, which is approximately 41 feet.
252. Josh and Ken can clean the math building in $1\frac{7}{8}$ hours working together.
253. Sean will have 1600 pesos.
254. a) $C(m) = 35 + 0.12m$
b) \$49.88 for a one-day rental
c) 268 miles can be driven for \$67.16
255. At 150 miles the daily cost will be the same.
256. The tree is 24 feet tall.