ANSWERS, ALG2 REVIEW FOR 1ST SEM EXAM

1. -2 2. -20 3. $775.7\ cm^3$ 4. R,Q 5. R,I 6. R,Q 7. R,Q

8. R,Q,Z 9. R,I 10. R,Q,Z,W,N 11. R,I 12. multiplicative identity

13. associative, + 14. multiplicative inverse 15. distributive 16. commutative, +

17. additive inverse 18. additive identity 19. 165 20. $6w-2v+14$

21. $-9r+24s$ 22. $-\frac{41}{13}$ 23. $\frac{25}{11}$ 24. 9 25. $-\frac{1}{8}$ 26. $19'x42'$

27. Mrs. Ames, 51; Jonathon, 18 28. 172 children, 311 adults 29. $\{-1,11\}$

30. $\{-\frac{4}{3},4\}$ 31. no solution 32. $x<4$ (graph below) 33. $x\geq -2$ (graph below)

34. $x>\frac{10}{3}$ (graph below) 35. $\frac{5}{2}<u\leq\frac{11}{2}$ 36. $x<-\frac{1}{5}$ *or* $x\geq\frac{6}{7}$

37. $-4\leq x\leq -\frac{2}{3}$ (graph below) 38. $x<1$ *or* $x>\frac{7}{3}$ (graph below)

39. R (all reals) (graph below) 40. $x\geq\frac{3}{5}$ or $x\leq -\frac{3}{5}$

41. $D=\{-5,2,5\}; R=\{-2,5\}$; yes 42. $D=\{-7,4,5,8\}; R=\{1,3,6,9\}$; no

43. $D=\{2,5\}; R=\{1\}$; yes 44. 23 45. $36a^2+9a-5$ 46. yes (graph below)

47. no 48. yes (graph below) 49. no 50. $-\frac{8}{7}$ 51. undefined 52. $-\frac{16}{5}$

53. 0 54. parallel 55. perpendicular 56. parallel 57. neither 58. perpendicular 59. $y=3x-4; 3x-y=4$ 60. $y=-\frac{3}{4}x+11; 3x+4y=44$

61. $y=3x-11;\ 3x-y=11$ 62. $y=\frac{2}{3}x+\frac{4}{3}; 2x-3y=-4$ 63. $y=\frac{5}{6}x+\frac{21}{2}$; $5x-6y=-63$ 64. $y=-\frac{1}{8}x-\frac{15}{2}; x+8y=-60$ 65-71 see below. 72. $(\frac{1}{2},-3)$

73. $(\frac{2}{3},-\frac{3}{5})$ 74. 13 75. see below 76. $(0,1),(2,2),(0,5)$; max=2; min=–10

77. $(1,2),(0,5),(\frac{8}{3},\frac{11}{3})$; max=27; min=12 78. $(\frac{5}{3},4,-1)$ 79. $(1,-6,\frac{1}{2})$

80. A_{4x2} 81. $\begin{bmatrix} 36 & -25 \\ 0 & 31 \\ 12 & 31 \end{bmatrix}$ 82. $(2,\frac{1}{3})$ 83. 158 84. $\begin{bmatrix} -6 & -40 \\ 21 & -36 \\ 39 & 40 \end{bmatrix}$

85. $\frac{1}{14}\begin{bmatrix} 3 & -5 \\ 4 & -2 \end{bmatrix}$ 86. $x=-\frac{1}{2}, y=3$ 87. 7 88. $1.54\,x\,10^4$ 89. $3.23\,x\,10^{18}$

90. $5.1\,x\,10^6$ 91. $6.4\,x\,10^2$ 92. z^{30} 93. z^{13} 94. x^8y^5

95. $\frac{9}{49}c^6h^2-h^2$ 96. u^7 97. $5d^5e^3$ 98. $5t$ 99. $-\frac{1}{3gh}$

100. $\frac{2n^7}{5m^5}$ 101. $6y^2-5y-21$ 102. $9x^2-24x+16$

103. $2r^3+r^2-31r+40$ 104. $16w^4+40w^2+25$ 105. $4w^4r^3(3+4r)$

106. $4x(3x+y)(y-3)$ 107. $(s+7)(s-2)$ 108. $(3u+7)(2u-1)$

109. $2(3x+1)(3x-1)$ 110. $(3x+2y)^2$ 111. $(3+x)(9-3x+x^2)$

112. $(3-x)(9+3x+x^2)$ 113. $3(2g+5)(4g^2-10g+25)$ 114. $(-2,-3)$

115. 19 and 13 116. 30 dimes, 8 quarters 117. salad, \$5; steak,\$7;

soda, \$3 118. $31.5 units^2$ 119. $x(2x+3)$ 120. $(y+4)(y-4)$

121. not factorable 122. $3(t+7)(t-7)$ 123. $(u^2+8)(u^2-8)$

124. $(u+7)(u+1)$ 125. $(c+8)(c+3)$ 126. $(j-8)(j+5)$

127. $(d-6)(d+1)$ 128. $(k+7)(k-3)$ 129. $(t+5)^2$ 130. $(b+9)^2$

131. $(k-11)^2$ 132. $(2x+3)^2$ 133. $(3y-2)^2$ 134. $(r+8)(r+2)$ 135. $(d-6)^2$

136. $(q-9)(q-4)$ 137. $(m+75)(m+3)$ 138. $(f+8)(f-3)$ 139. $(z+3)(2z+1)$
140. $(3a+5)(2a-1)$ 141. $(3c+2)^2$ 142. $(5g-2)^2$ 143. $(8g-9)(2g-1)$

144. not factorable 145. $(a+b)(a-b)$ 146. $(a+b)(a^2-ab+b^2)$

147. $(a-b)(a^2+ab+b^2)$ 148. $2(x-3)(x^2+3x+9)$ 149. $(b^2+9)(b+3)(b-3)$

150. $4x^2(x^2+1)(x+1)(x-1)$ 151. $(9x^2+4)(3x+2)(3x-2)$ 152. $5y^2(y+3)(y^2-3y+9)$

153. $y(2y-5)(4y^2+10y+25)$ 154. $2x^2-3x+4$ 155. $4x^2+4x-3-\frac{13}{3x-1}$

156. $3x^3+6x^2+16x-3-\frac{7}{2x-4}$ 157. $4y^2+19y+43+\frac{175}{y-4}$ 158. $5x^2-10x+22$

159. $5x^3-5x^2+12x+2+\frac{4}{x+3}$ 160. $q^3+3q^2+9q+27$ 161. $8|x|$ 162. $-5a^4b^5$

163. $|5j-2k|$ 164. $|3n+4|$ 165. $2\sqrt{19}$ 166. $6x|y|\sqrt{2x}$ 167. $2s\sqrt{10r}$ 168. $\frac{\sqrt[3]{7}}{4}$

169. $\frac{17\sqrt{6}}{18}$ 170. $3\sqrt[4]{27}$ 171. $\sqrt[5]{9}$ 172. $6\sqrt{21}+4\sqrt{3}$ 173. $15\sqrt[3]{3}-12$

174. $8\sqrt[3]{9}+15\sqrt[3]{2}$ 175. $17-\sqrt{7}$ 176. $14\sqrt{2}$ 177. $19\sqrt[4]{5y^2}$

178. $1.05x10^5$ bars 179. $3x^3+11x^2+3x-14$ units^3 180. x^2-5x+3 units

181. 10.5 acres 182. $-0.023x+1260$ 183. $3x^3+7x^2-18x+8$ *units*^{3}

184. $5.4x10^{-4}$ *lb* 185. $2x^3-6x^2+4x-8$ *cm*

186-189 see below

190. $2\sqrt{19}$ 191. $6x|y|\sqrt{2x}$ 192. $2s\sqrt{10r}$ 193. $\frac{\sqrt[3]{7}}{4}$

194. $\frac{17\sqrt{6}}{18}$ 195. $3\sqrt[4]{27}$ 196. $\sqrt[5]{9}$ 197. $6\sqrt{21}+4\sqrt{3}$ 198. $15\sqrt[3]{3}-12$

199. $8\sqrt[3]{9}+15\sqrt[3]{2}$ 200. $17-\sqrt{7}$ 201. $14\sqrt{2}$ 202. $19\sqrt[4]{5y^2}$

203. $21\sqrt{7}-7\sqrt{5}+3\sqrt{35}-5$ 204. 83 205. $\frac{-25+17\sqrt{5}}{41}$ 206. $s^{\frac{4}{5}}$

207. $81^{\frac{1}{4}}n^{\frac{5}{4}}q^{\frac{3}{4}}$ or $3n^{\frac{5}{4}}q^{\frac{3}{4}}$ 208. $\sqrt[4]{6}$ 209. $x^2\sqrt[8]{729x^4y}$ 210. 3 211. $\frac{1}{3}$

212. 64 213. $\frac{6^{\frac{3}{4}}}{6}$ 214. $3^{\frac{1}{12}}$ 215. $\frac{c^{\frac{1}{5}}}{c}$ 216. $\frac{12-4n^{\frac{1}{2}}-n}{36-n}$ 217. $\sqrt{5}+1$

218. $\frac{20\sqrt{3}+4\sqrt{6}}{23}$ 219. 5 220. –4 221. 12 222. 10 223. $14i$ 224. $4i\sqrt{3}$

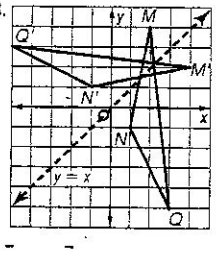
225. –56 226. $-343i$ 227. $23-3i$ 228. $10-60i$ 229. $68+3i$ 230. $24-70i$

231. $9+14i$ 232. $-5-12i$ 233. $3-4i$ 234. $\frac{-9+40i}{41}$ 235. $\frac{35+21i}{17}$

236. $\frac{7+i}{10}$ 237. $23\sqrt{2}$ 238. $42\sqrt{3}-2\sqrt{10}+6\sqrt{5}+6\sqrt{30}$ 239. $-13\sqrt{5}+11\sqrt{2}$
240. $6\sqrt[3]{27}$ 241. $6\sqrt[3]{16}$ 242. $5\sqrt[3]{27}$ 243. $14\sqrt[3]{32}$ 244. $(21-20i)$
245. $(-45+28i)$ 246. $(-7-24i)$ 247. $(45+28i)$ 248. 2 249. 10
250. 3 251. 4 252. 32 253. slope $=-\frac{2}{3}$, y-intercept $=5$
254. slope $=\frac{2}{5}$, y-intercept $=-2$ 255. Neither. Since the lines have the same slope $(\frac{2}{3})$ and the same y-intercept (5), they are the same line. The lines are neither parallel nor perpendicular. 256. Parallel. The lines have the same slope $(-\frac{3}{4})$ and different y-intercepts. 257. Neither. The lines have the same y-intercept (2), but their slopes are not the same ($\frac{5}{7}$ and $-\frac{5}{7}$). 258. reals, rationals, integers 259. reals, rationals 260. reals, rationals 261. reals, rationals 262. reals, rationals, integers, wholes,naturals
263. reals, rationals, integers 264. reals, irrationals 265. 1 266. 1 267. 1
268. Perpendicular. Since the slopes ($-\frac{3}{11}$ and $\frac{11}{3}$) are negative reciprocals, the lines are perpendicular. 269. $\frac{1}{b^{10}c^{12}}$ 270. $\frac{s^6}{r^{24}t^{30}}$ 271. $u \geq 7$ or $u \leq -3$ 272. $-8 < v < 2$
273. $w > 4$ or $w < -2$ 274. $-11 < y < 3$ 275. 30.5 $units^2$ 276. $3x-10$ 277. $7-2y$
278. $-7-8y$ 279. $243p^{20}q^{15}$ 280. $\frac{c^2}{3d^2e^2}$ 281. –18 282. $\frac{1}{48}\begin{bmatrix} 2 & 6 \\ -7 & 3 \end{bmatrix}$
283. commutative property of multiplication 284. multiplicative inverse property
285. multiplicative identity property 286. additive identity property

287. $M'(4,2), Q'(-5,3), N'(-1,1)$ 289. $M''(-4,2), Q''(5,3), N''(1,1)$

288.



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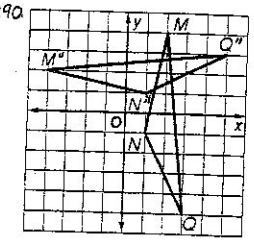

291. consistent and dependent 292. reals, rationals 293. 16 hrs military, 24 hrs physical, 32 hrs study 294. $14(3x-2)(x+1)$

295. quotient: $2x^3+2x^2-4x+18$, remainder: -39 296. $\frac{-3200y^3}{x^6}$

297. burger, $2.70; fries, $1.30; shake, $1.80 298. $21\sqrt{6}-28\sqrt{3}$

299. $151+24\sqrt{7}$ 300. $180+12\sqrt{6}-15\sqrt{14}-2\sqrt{21}$ 301. $\pm 10i\sqrt{2}$

302. $21\sqrt{2}$ 303. MIN value of -23 304. MAX.value of $\frac{25}{8}$

305. $x^2-3x-28=0$

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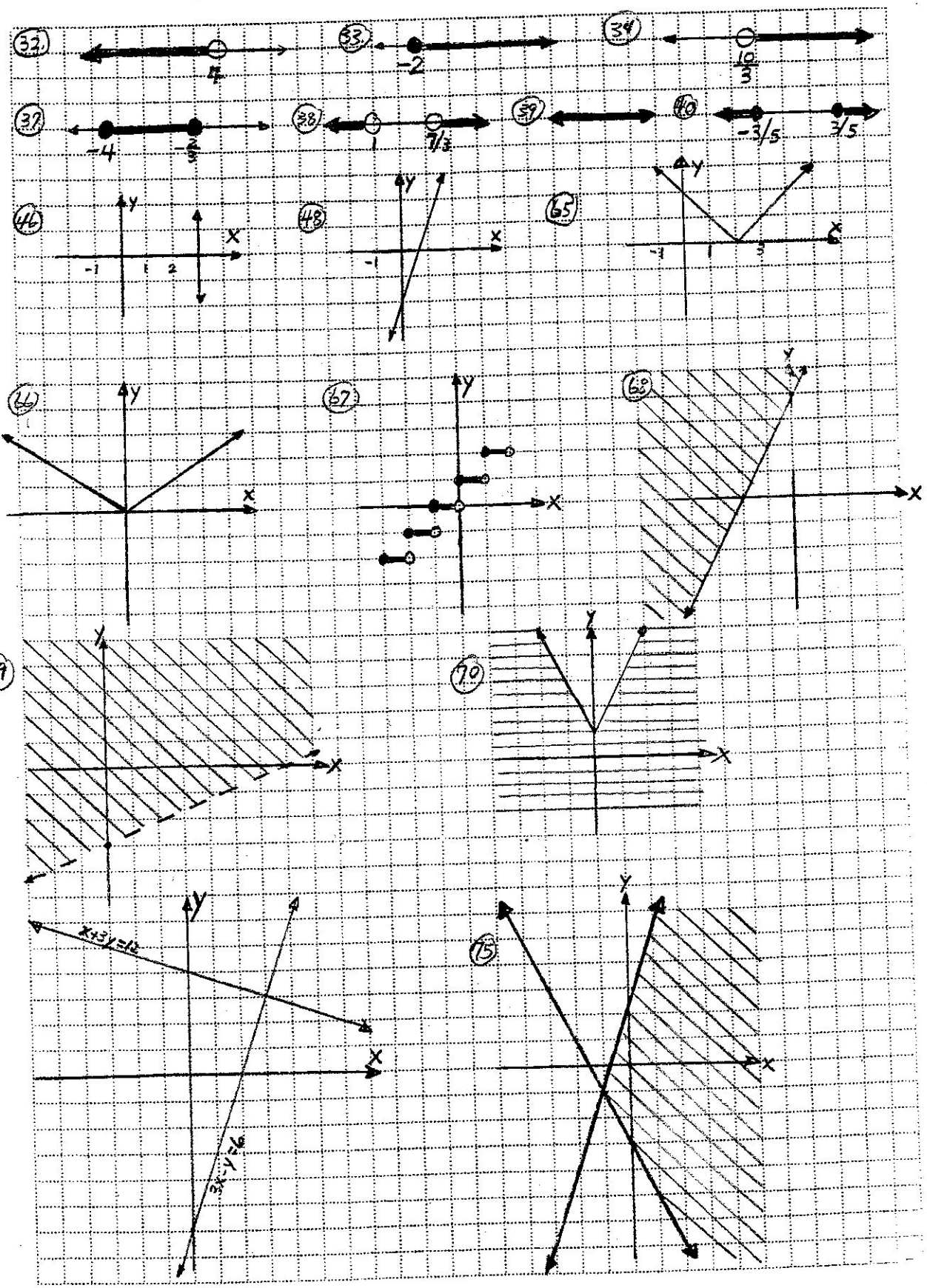
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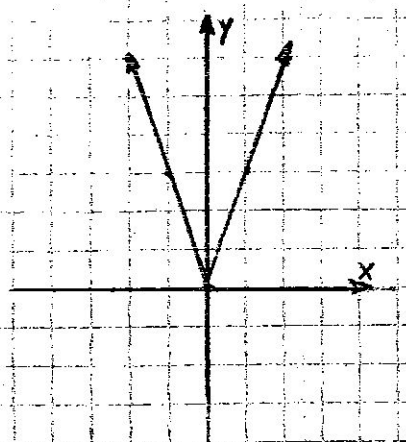
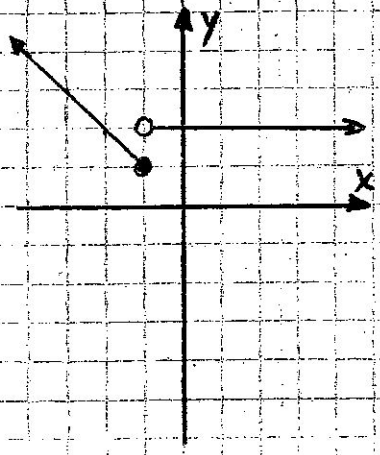


D = all reals

R = $\{y \geq 0\}$

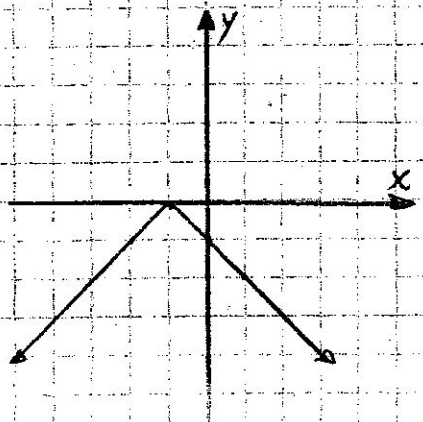
187.



D = all reals

R = $\{y \geq 1\}$

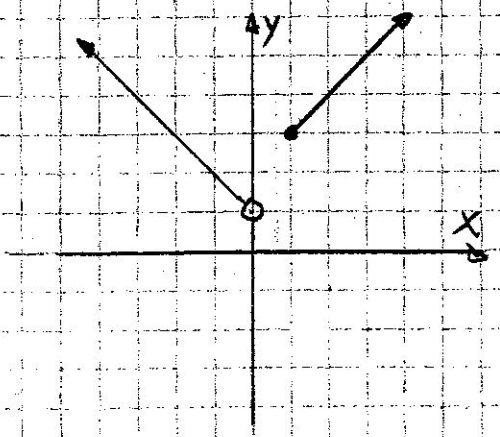
188.



D = all reals

R = $y \leq 0$

189.



D = $x < 0$ or $x \geq 1$

R = $y > 1$