IGNORE the Chap 4 problems.

REVIEW, ALG2 1ST SEMESTER EXAM Dec, 2014 **Name**_____

1. Evaluate $(18-(2-3\bullet 4)^2)\div 41$ [1.1]

2. Evaluate if $a=-3, b=5, c=-2,$ and $d=4$: $\frac{2ab^2-50}{5c+5d}$ [1.1]

3. The volume of a sphere is calculated by using the formula $V=\frac{4}{3}\pi r^3$, where r represents the measure of the radius. Find the volume of a sphere with a radius of $5.7\ cm$. Round to the nearest tenth of a cubic centimeter. [1.1]

Given R = reals, Q = rationals, I = irrationals, Z = integers, W = wholes, N = naturals. Name the sets of numbers to which each number belongs: [1.2]

4. -3.2 5. 19π 6. $\frac{52}{3}$ 7. $15.\overline{378}$

8. $-\frac{35}{5}$ 9. 5.3110840547 .... 10. $\sqrt{25}$ 11. $\sqrt{26}$

State the property illustrated in each equation. [1.2]

12. $(ab+c)\bullet 1=(ab+c)$ 13. $m+(5+j)=(m+5)+j$ 14. $11(\frac{1}{11})=1$

15. $5+4(x+2)=5+4x+(4)(2)$ 16. $(3+x)+y=(x+3)+y$ 17. $b+(-b)=0$

18. $(mx+b)+0=mx+b$

Simplify each expression: [1.2]

19. $(32+7)4+9$ 20. $8w+3v-2w+14-5v$ 21. $\frac{3}{4}(2r+8s)-3(\frac{7}{2}r-6s)$

Solve each equation: [1.3]

22. $16x+26=3(x-5)$ 23. $5(5x-7)=3(x+5)$

24. $11=\frac{7x-8}{5}$ 25. $\frac{4s+5}{6}=\frac{3}{4}$

Write a let statement and an equation for each of the following problems, and then solve. [1.3]

26. A bedroom has a length that is 4 feet more than twice its width. Its perimeter is 122 feet. Find its dimensions.

27. Mrs. Ames was 33 years old when Jonathon was born. In four years the sum of their ages will be 77 years. How old is each now?

28. "Mrs. Smith's Buffet" charges $7.50 for adults and $4.00 for children. Yesterday 139 more adults than children came in and had their dinners with Mrs. Smith. The proceeds from this day's business were $3020.50. How many adults and how many children ate their dinners with Mrs. Smith yesterday? [1.3]

Solve each equation: [1.4]

29. $|3x - 15| = 18$ 30. $7|3c - 4| = 56$ 31. $|w - 5| + 8 = 3$

Solve each inequality. Graph the solution set. [1.5]

32. $10(x + 3) < 70$ 33. $4(4x + 3) \geq 8x - 4$ 34. $9(3x - 2) > 12x + 32$

Solve each compound sentence: [1.6]

35. $-2 < 4(u - 3) \leq 10$ 36. $5x - 11 < -12$ *or* $7x + 5 \geq 11$

Solve each inequality. Graph the solution set. [1.6]

37. $|3x + 7| \leq 5$ 38. $8 + |10 - 6x| > 12$

39. $|11 + 5x| + 3 > 1$ 40. $|5x| + 2 \geq 5$

State the domain (D) and range (R) of each of the following relations. Also determine if the relation is a function (*yes* or *no*). [2.1]

41. $\{(-5,-2),(2,5),(5,-2)\}$ 42. $\{(4,9),(8,3),(-7,6),(5,1),(8,1)\}$

43. $\{(5,1),(2,1)\}$

Find the value of each function. [2.1]

44. If $f(x) = 3x^2 - 2x + 7$, find $f(-2)$.

45. If $f(x) = 4x^2 - 3x - 5$, find $f(-3a)$.

Determine if each equation is a linear equation. If it is, graph it. [2.2]

46. $x = 3$

47. $2x^2 + 2y^2 = 5$

48. $5y = 15x - 10$

49. $y = -3x^2 + 4$

Determine the slope of the line passing through each pair of points. [2.3]

50. $(4,-2),(-3,6)$

51. $(3,-4),(3,7)$

52. $(-3,8),(2,-8)$

53. $(-4,-7),(-10,-7)$

(Before doing problems 54-58, work out the similar problems 253-257. The explanation for problems 253-257 may help you.)

Determine if the lines are parallel, perpendicular, or neither. [2.4]

54. $y = 5x + 1$ and $y = 5x - 2$

55. $y = -3x + 4$ and $y = \frac{1}{3}x + 7$

56. $6x - 3y = 5$ and $y = 2x + 4$

57. $3x + 2y = 1$ and $y = \frac{3}{2}x + 5$

58. $x = 3$ and $y = 2$

Write the slope-intercept form and the standard form of an equation for each graph described. [2.4]

59. slope of 3 and y-intercept of -4

60. slope of $-\frac{3}{4}$ and passes through $(8,5)$

61. passes through $(2,-5)$ and $(6,7)$

62. passes through $(7,6)$ and has x-intercept $= -2$

63. passes through $(-3,8)$ and is parallel to the line whose equation is $y = \frac{5}{6}x - 11$

64. passes through (–4,–7) and is perpendicular to the line whose equation is $16x - 2y = 9$.

Graph each function. [2.6]

65. $f(x) = |x - 2|$

66. $f(x) = \frac{2}{3}|x|$

67. $f(x) = [x] + 1$

Graph each inequality. [2.7]

68. $y - 4 \geq 2x$

69. $3x - 7y < 21$

70. $y \leq 2|x| + 1$

71. Determine the solution to the system $x + 3y = 12$, $3x - y = 6$ by graphing. [3.1]

72. [3.2] Determine the solution to the following system of equations by the substitution method.

$$4x + 3y = -7$$
$$6x - y = 6$$

73. [3.2] Determine the solution to the following system by the elimination method.

$$3x - 10y = 8$$
$$3x + 5y = -1$$

74. Find the value of the determinant: $\begin{vmatrix} -4 & 3 \\ -7 & 2 \end{vmatrix}$ [4.5]

75. Solve the following system by graphing: $y \leq 3x + 2$, $2x + y \geq -3$ [3.3]

Graph each system of inequalities. Name the coordinates of the vertices of the polygon formed. Find the maximum and minimum values of the given function. [3.4]

76.
$$y \geq \frac{1}{2}x + 1$$
$$3x + 2y \leq 10$$
$$x \geq 0$$
$$f(x,y) = 3x - 2y$$

77.
$$x + 2y \leq 10$$
$$y \geq x + 1$$
$$3x + y \geq 5$$
$$f(x,y) = 6x + 3y$$

Solve each system of equations. [3.5]

78. $3x + 2y + 5z = 8$
$12x - 3y + 7z = 1$
$6x - 2y + 3z = -1$

79. $7x + 6y - 4z = -31$
$2x - 5y + 6z = 35$
$5x + 2y + 2z = -6$

80. Name the matrix $A = \begin{bmatrix} 3 & -7 \\ 4 & 6 \\ -8 & -9 \\ 3 & 12 \end{bmatrix}$ using its dimensions. [4.1]

81. Perform the indicated operations. $-2\begin{bmatrix} -3 & 5 \\ 5 & 2 \\ -1 & 7 \end{bmatrix} + 5\begin{bmatrix} 6 & -3 \\ 2 & 7 \\ 2 & 9 \end{bmatrix}$ [4.2]

82. Find the values of x and y for which the equation is true. [4.1]

$$\begin{bmatrix} 3y \\ x + 6y \end{bmatrix} = \begin{bmatrix} 2x - 3 \\ 4 \end{bmatrix}$$

83. Evaluate the determinant. Show your work. [4.5]

$$\begin{vmatrix} 3 & -6 & 2 \\ 0 & 1 & 8 \\ -4 & 2 & 2 \end{vmatrix}$$

84. Multiply. $\begin{bmatrix} -2 & 4 \\ 3 & 6 \\ 8 & -1 \end{bmatrix} \cdot \begin{bmatrix} 5 & 4 \\ 1 & -8 \end{bmatrix}$ [4.3]

85. Find the inverse. $\begin{bmatrix} -2 & 5 \\ -4 & 3 \end{bmatrix}$ [4.7]

86. Solve the system of equations by using a matrix equation. [4.8]

$$2x - 3y = -10$$
$$4x + 5y = 13$$

87. Find the area of $\triangle SUN$ if $S = (-5,5), U = (1,3),$ and $N = (-3,2).$ [4.5]

[5.1,] Evaluate and then express answer in scientific notation.

88. $(35,000,000)(0.00044)$ 89. $(3.8 \times 10^5)(8.5 \times 10^{12})$

90. $\dfrac{1.53 \times 10^{11}}{3 \times 10^4}$ 91. $\dfrac{0.0000512}{0.00000008}$

[5.1] Simplify

92. $(z^{10})^3$ 93. $z^{10}z^3$ 94. $(x^3y^2)^2x^2y$ 95. $(\frac{2}{7}c^3h)^2+\frac{5}{49}c^6h^2 - h^2$

[5.1] Simplify

96. $u^{-8}u^{15}$ 97. $\dfrac{30d^6e^8}{6de^5}$ 98. $(\frac{1}{5t})^{-1}$

99. $-\dfrac{4g^3h^4}{(2gh^2)^2(3g^2h)}$ 100. $\dfrac{2m^{-2}n^2}{5m^3n^{-5}}$

[5.2] Simplify

101. $(3y-7)(2y+3)$ 102. $(3x-4)^2$ 103. $(2r-5)(r^2+3r-8)$

104. $(4w^2+5)^2$

[5.4] Factor:

105. $12w^4r^3 + 16w^4r^4$ 106. $12x^2y - 36x^2 + 4xy^2 - 12xy$ 107. $s^2 + 5s - 14$

108. $6u^2 + 11u - 7$ 109. $18x^2 - 2$ 110. $9x^2 + 12xy + 4y^2$

111. $27 + x^3$ 112. $27 - x^3$ 113. $24q^3 + 375$

114. [3.2] Determine the solution to the following system of equations by the substitution method.

$$\begin{aligned} x - 2y &= 4 \\ 5x + 3y &= -19 \end{aligned}$$

115. [3.2] The average of two numbers is 16. The difference of these numbers is 6. What are the numbers?

116. [3.2] Zach has a total of 38 dimes and quarters, and they amount to \$5. How many dimes does he have? quarters?

117. [3.9] Mr. Parks, Mr. Carreira, and Mr. Fromm went out to eat at Chili's on Saturday. Mr. Parks ordered 1 salad, 1 steak, and 1 soda for \$15.00. Mr. Carreira ordered 1 salad and 1 steak for \$12.00. Mr. Fromm ordered 1 steak and 1 soda for \$10. How much does each salad, steak and soda cost individually at Chili's?

118. [4.5] Find the area of the concave pentagon which has coordinates $(1,-1)$, $(2,4)$, $(2,9)$, $(7,9)$, and $(7,6)$. (Hint: The area of a trapezoid is $A = \frac{1}{2}(b_1 + b_2)h$ where h = height of trapezoid, and b_1, b_2 = bases of trapezoid.)

[5.4] Factor:

119. $2x^2 + 3x$ 120. $y^2 - 16$ 121. $s^2 + 25$ 122 $3t^2 - 147$ 123. $u^4 - 64$

124. $u^2 + 8u + 7$ 125. $c^2 + 11c + 24$ 126. $j^2 - 3j - 40$ 127. $d^2 - 5d - 6$

128. $k^2 + 4k - 21$ 129. $t^2 + 10t + 25$ 130. $b^2 + 18b + 81$ 131. $k^2 - 22k + 121$

132. $4x^2 + 12x + 9$ 133. $9y^2 - 12y + 4$ 134. $r^2 + 10r + 16$ 135. $d^2 - 12d + 36$

136. $q^2 - 13q + 36$ 137. $m^2 + 78m + 225$ 138. $f^2 + 5f - 24$ 139. $2z^2 + 7z + 3$

140. $6a^2 + 7a - 5$ 141. $9c^2 + 12c + 4$ 142. $25g^2 - 20g + 4$ 143. $16g^2 - 26g + 9$

144. $a^2 + b^2$ 145. $a^2 - b^2$ 146. $a^3 + b^3$ 147. $a^3 - b^3$

148. $2x^3 - 54$ 149. $b^4 - 81$ 150. $4x^6 - 4x^2$ 151. $81x^4 - 16$

152. $5y^5 + 135y^2$ 153. $8y^4 - 125y$

[5.3] Simplify:

154. $(10x^3 - 11x^2 + 14x + 8) \div (5x + 2)$ 155. $(12x^3 + 8x^2 - 13x - 10) \div (3x - 1)$

156. $(6x^4 + 8x^2 - 70x + 5) \div (2x - 4)$

[5.3] Divide using synthetic division.

157. $(4y^3 + 3y^2 - 33y + 3) \div (y - 4)$ 158. $(5x^3 + 2x + 44) \div (x + 2)$

159. $(5x^4 + 10x^3 - 3x^2 + 38x + 10) \div (x + 3)$ 160. $(q^4 - 81) \div (q - 3)$

[5.5] Simplify:

161. $\sqrt{64x^2}$ 162. $\sqrt[3]{-125a^{12}b^{15}}$ 163. $\sqrt{(5j - 2k)^2}$ 164. $\sqrt{9n^2 + 24n + 16}$

[5.5] Simplify: 165. $\sqrt{76}$ 166. $\sqrt{72x^3y^2}$ 167. $\sqrt{5rs}\ \sqrt{8s}$ 168. $\sqrt[3]{\frac{7}{64}}$

169. $\frac{17}{3\sqrt{6}}$ 170. $\frac{9}{\sqrt[4]{3}}$ 171. $\frac{3}{\sqrt[5]{27}}$ 172. $\sqrt{6}\,(3\sqrt{14} + 2\sqrt{2})$

173. $\sqrt[3]{9}\,(5\sqrt[3]{9} - 4\sqrt[3]{3})$ 174. $\sqrt[3]{6}\,(4\sqrt[3]{12} + 5\sqrt[3]{9})$

[5.6] Simplify:

175. $7 + 3\sqrt{7} - 4\sqrt{7} + 10$ 176. $4\sqrt{8} - 6\sqrt{2} + 3\sqrt{32}$ 177. $8\sqrt[4]{80y^2} + \sqrt[4]{405y^2}$

[5.1] 178. The number of "Choc-Lot" bars sold two years ago was 8.40×10^4. That number increased by 25% last year. How many of these bars were sold last year. Express your answer in scientific notation.

[5.2] 179. The area of the base of a rectangular box measures $3x^2 + 5x - 7$. The height of the box measures $x + 2$ units. Find a polynomial expression for the volume of the box.

[5.3] 180. The area of a rectangle is $x^3 - x^2 - 17x + 12$ square units. The width of the rectangle is $x + 4$ units. What is the length of the rectangle?

[4.5] 181. A fish and wildlife mangement organization uses a GIS (geographic information system) to store and analyze data for the parcels of land it manages. All of the parcels are mapped on a grid in which 1 unit represents 1 acre. If the coordinates of the corners of a parcel are $(5,-2),(3,-5)$, and $(2,4)$, how many acres are in the parcel?

[5.2] 182. Luke invests $1200 in two mutual funds. The first year, one fund grows 2.7% and the other grows 5%. Write a polynomial to represent the amount Luke's $1200 grows to in that year if x represents the amount he invested in the fund with the lesser growth rate.

[5.3] 183. The area of the base of a rectangular box measures $3x^2 - 5x + 2$ square units. The height of the box measures $x + 4$ units. Find a polynomial expression for the volume of the box.

[5.4] 184. The human body contains 0.0004% iodine by weight. How many pounds of iodine are there in a 135 pound teenager? Express your answer in scientific notation.

[5.5] 185. The area of a triangle is $x^4 + x^3 - 10x^2 + 4x - 16$ square centimeters. The length of the base is $x + 4$ cm. What is the height of the triangle?

Graph each function. Identify the domain and the range. [2.6]

186. $f(x) = 3|x|$

187. $g(x) = \begin{cases} -x, \text{ if } x \le -1 \\ 2, \text{ if } x > -1 \end{cases}$

188. $h(x) = -|x + 1|$

189. $j(x) = \begin{cases} x + 2, \text{ if } x \ge 1 \\ -x + 1, \text{ if } x > 0 \end{cases}$

[5.5] Simplify:

190. $\sqrt{76}$ 191. $\sqrt{72x^3y^2}$ 192. $\sqrt{5rs}\ \sqrt{8s}$ 193. $\sqrt[3]{\frac{7}{64}}$ 194. $\frac{17}{3\sqrt{6}}$

195. $\frac{9}{\sqrt[4]{3}}$ 196. $\frac{3}{\sqrt[5]{27}}$ 197. $\sqrt{6}(3\sqrt{14}+2\sqrt{2})$ 198. $\sqrt[3]{9}(5\sqrt[3]{9}-4\sqrt[3]{3})$

199. $\sqrt[3]{6}(4\sqrt[3]{12}+5\sqrt[3]{9})$

[5.6] Simplify:

200. $7+3\sqrt{7}-4\sqrt{7}+10$ 201. $4\sqrt{8}-6\sqrt{2}+3\sqrt{32}$ 202. $8\sqrt[4]{80y^2}+\sqrt[4]{405y^2}$

203. $(7+\sqrt{5})(3\sqrt{7}-\sqrt{5})$ 204. $(6\sqrt{3}+5)(6\sqrt{3}-5)$ 205. $\frac{5-\sqrt{5}}{2+3\sqrt{5}}$

[5.7] Express using rational exponents:

206. $\sqrt[5]{s^4}$. 207. $\sqrt[4]{81n^5q^3}$

Express in radical form:

208. $6^{\frac{1}{4}}$ 209. $3^{\frac{3}{4}}x^{\frac{5}{2}}y^{\frac{1}{8}}$

[5.7] Evaluate:

210. $27^{\frac{1}{3}}$ 211. $9^{-\frac{1}{2}}$ 212. $32^{\frac{6}{5}}$

[5.7] Simplify:

213. $\frac{1}{6^{\frac{1}{4}}}$ 214. $\frac{3^{\frac{1}{3}}}{3^{\frac{1}{4}}}$ 215. $c^{-\frac{4}{5}}$ 216. $\frac{2-n^{\frac{1}{2}}}{6-n^{\frac{1}{2}}}$

[5.8] Solve each equation:

217. $c+4=c\sqrt{5}$ 218. $5x-\sqrt{3}=x\sqrt{2}+3\sqrt{3}$ 219. $6-\sqrt{7x+1}=0$

220. $\sqrt{x+5}+\sqrt{x+13}=4$ 221. $\sqrt{x-3}-\sqrt{x+4}=-1$ 222. $\sqrt[3]{12n+5}-5=0$

[5.9] Simplify:

223. $\sqrt{-196}$ 224. $\sqrt{-48}$ 225. $7i(8i)$ 226. $(7i)^3$

[5.9] Simplify:

227. $(9+8i)+(14-11i)$ 228. $(30-38i)-(20+22i)$ 229. $(8+7i)(5-4i)$

230. $(7-5i)^2$

[5.9] Find the conjugate of each complex number:

231. $9-14i$ 232. $-5+12i$

[5.9] Simplify:

233. $\frac{12+9i}{3i}$ 234. $\frac{4+5i}{4-5i}$ 235. $\frac{14i}{3+5i}$ 236. $\frac{5}{7-i}$

[5.5] Simplify:

237. $4\sqrt{50}+9\sqrt{18}-6\sqrt{32}$

238. $14\sqrt{27}-\sqrt{40}+2\sqrt{45}+2\sqrt{270}$

239. $7\sqrt{20}+8\sqrt{32}-9\sqrt{45}-3\sqrt{98}$

[5.6] Simplify:

240. $\frac{18}{\sqrt[5]{9}}$ 241. $\frac{12}{\sqrt[7]{8}}$ 242. $\frac{15}{\sqrt[4]{3}}$ 243. $\frac{28}{\sqrt[6]{2}}$

[5.9] Simplify:

244. $(5-2i)^2$ 245. $(2+7i)^2$ 246. $(3-4i)^2$ 247. $(7+2i)^2$

[5.7] Evaluate:

248. $4^{\frac{1}{2}}$ 249. $1000^{\frac{1}{3}}$ 250. $81^{\frac{1}{4}}$ 251. $8^{\frac{2}{3}}$ 252. $16^{\frac{5}{4}}$

[2.4] 253. What are the slope and the y-intercept of the line $y=-\frac{2}{3}x+5$?

[2.4] 254. What are the slope and the y-intercept of the line $2x - 5y = 10$?

[2.4] 255. Are the following lines parallel, perpendicular, or neither?
$y = \frac{2}{3}x + 5$ and $2x - 3y = -15$

[2.4] 256. Are the following lines parallel, perpendicular, or neither?
$y = -\frac{3}{4}x + 8$ and $6x + 8y = -11$

[2.4] 257. Are the following lines parallel, perpendicular, or neither?
$y = \frac{5}{7}x + 2$ and $5x + 7y = 14$

[1.2] To what sets of numbers (reals,rationals, irrationals, integers, wholes, or naturals) do the following numbers belong?

258. -112 259. $29.37373737...$ 260. -19.7 261. 1098.89

262. $\sqrt{36}$ 263. $-\sqrt{49}$ 264. $\sqrt{50}$

[5.1] 265. What is y^0 ? 266. What is $(\frac{8}{9})^0$? 267. What is $(a^9b^2)^0$?

[2.4] 268. Are the following lines parallel, perpendicular, or neither?
$y = -\frac{3}{11}x + 5$ and $22x - 6y = 5$

[5.1] Simplify:
269. $(b^5c^6)^{-2}$ 270. $(r^8s^{-2}t^{10})^{-3}$

[1.6] Solve each inequality:
271 $|u - 5| \geq 2$ 272. $|v + 3| < 5$ 273. $|w - 1| > 3$ 274. $|y + 4| < 7$

[4.5] 275. Determine the area of a triangle which has the following coordinates for its vertices:
$(5,-8),(-4,2),(3,1)$

[3.2] 276. What expression can be substituted for y in the second equation of the system to solve the system by substitution ?

$$3x - y = 10$$
$$2x + 5y = 8$$

[3.2] 277. What expression can be substituted for x in the first equation of the system to solve the

system by substitution ?

$$5x + 9y = -1$$
$$x + 2y = 7$$

[3.2] 278. What expression can be substituted for x in the second equation of the system to solve the

system by substitution ?

$$x + 8y = -7$$
$$4x - 3y = -2$$

[5.1] Simplify:

279. $(3p^4q^3)^5(pq)^0$

280. $\dfrac{5b^3c^4d^6}{15b^3c^2d^8e^2}$

[4.5] 281. What is the value of $\begin{vmatrix} -2 & 1 \\ 4 & 7 \end{vmatrix}$?

[4.7] 282. What is the inverse of $\begin{bmatrix} 3 & -6 \\ 7 & 2 \end{bmatrix}$?

[1.2] 283. The equation $(7)(5) = (5)(7)$ is an example of what property of real numbers ?

[1.2] 284. The equation $5(\frac{1}{5}) = 1$ is an example of what property of real numbers ?

[1.2] 285. The equation $(\frac{2}{3})(1) = \frac{2}{3}$ is an example of what property of real numbers ?

[1.2] 286. The equation $\frac{3}{7} + 0 = \frac{3}{7}$ is an example of what property of real numbers ?

[4.4] For problems 287-290, use the following information. The vertices of $\triangle MQN$ are $M(2,4), Q(3,-5)$, and $N(1,-1)$.

287. Reflect $\triangle MQN$ over the line $y = x$ and find the coordinates of $\triangle M'Q'N'$ after the reflection by using a reflection matrix.

288. Graph $\triangle MQN$ and $\triangle M'Q'N'$.

289. Rotate $\triangle MQN$ 90° counterclockwise about the origin and find the coordinates of $\triangle M''Q''N''$ after the rotation by using a rotation matrix.

290. Graph $\triangle MQN$ and $\triangle M''Q''N''$.

For a reflection over the:	Reflection Matrices x-axis	y-axis	line y=x
Multiply the vertex matrix on the left by:	$\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$	$\begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix}$	$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$

For a counterclockwise rotation about the origin of:	Rotation Matrices 90°	180°	270°
Multiply the vertex matrix on the left by:	$\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$	$\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$	$\begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}$

[3.1] 291. Graph the system of equations and describe it as consistent and independent, consistent and dependent, inconsistent, or none of these.

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

[1.2] 292. Name the sets of numbers (reals, rationals, irrationals, integers, wholes, naturals) to which the number $\frac{21}{4}$ belongs.

[3.5] 293. The "At-it Time' at a military prep school is the name given to the time the cadets spend during the day other-than sleeping, eating, and in the classroom. This At-it Time is divided into three segments: physical training time, military training time, and study time.

The new superintendent at the school has directed that this At-it Time will be divided in the following way. Military training time will be two-thirds the time spent on physical training. Study time will be twice the time spent on military training.

Next week the At-it Time is scheduled for 72 hours. How many hours next week will the cadets be spending on military training, physical training, and studying ?

[5.4] 294. Factor the polynomial completely: $42x^2 + 14x - 28$

[5.5] 295. Simplify the expression using synthetic division: $(2x^4 + 6x^3 + 10x - 3) \div (x + 2)$

[5.1] 296. Simplify $20x^2(4x^{-15}y^2)(-40x^7y)$.

[3.5] 297. David is a frequent customer at a local diner which offers these combinations:

One burger, one fries, one shake	$5.80
Two burgers, one fries	$6.70
Three burgers, one shake	$9.90

Today, David wants a different combination than these. Assume that the price of a combo meal is the same price as purchasing each item separately. Find the price of a burger, a shake, and fries.

[5.6] 298. Simplify $2\sqrt{150} - \sqrt{48} + \sqrt{726} - 3\sqrt{192}$.

[5.6] 299. Simplify $(12 + \sqrt{7})^2$.

[5.6] 300. Simplify $(12-\sqrt{14})(15+\sqrt{6})$

[5.9] 301. Solve $40x^2+8000=0$

[5.6] 302. What is $\sqrt{12348}$ divided by $\sqrt{14}$ in simplified form ?

[6.1] Determine whether the given functions have a maximum or minimum value. Then find the maximum or minimum value.

303. $f(x)=x^2+8x-7$ 304. $g(x)=-2x^2-x+3$

[6.3] 305. Write a quadratic equation with the given roots of -4 and 7. Write the equation in the form $ax^2+bx+c=0$, where a,b, and c are integers.