Math 0301 Course Review

Simplify:

1) 8 less the quotient of 52 and 4.

2) The product of – 7 and 25.

3) 9 less than the product of 3 and 8.

4) $\frac{(7)(-6)(3)-4^2}{(-8)^2-(-3)^2}$

5) $-56 \div 7(8) - (-4^2 - [-9])^2$

6) $95 - \{34 - 8[15 - 4(3)] + 1\}$

7) $|-7| - (-5) - |-16 - (-3)|$

8) $-9^2 - (-4)^2 - 5^2 + 1^7$

9) $-5x - 3.2y + 6.8z - 1.1x + 0.2y$

10) $(11x - 9) - (43x - 2)$

11) $3x^2 - \frac{2}{11} + \frac{8}{7}x + \frac{7}{3} - \frac{9}{7}x + \frac{5}{3}x^2$

12) $8(-6b + 11) - 6(b - 3)$

13) $9(3x + 7) - (89x - 4) - 4x + 8$

14) $-3(4 \bullet 2)^2$

15) The product of twice $\frac{3}{8}$ and $\frac{16}{7}$.

16) $-5^2 \bullet (-5)^2$

17) The difference of $-4\frac{2}{9}$ and $-2\frac{5}{18}$.

18) 11 divided by – 2.2.

19) $(-\frac{12}{5})(\frac{5}{6})^3(0)(-\frac{7}{13})^4$

20) 5.6 minus the quotient of 72 and 18.

21) $\frac{3x}{8} - \frac{4x}{3} + \frac{x}{48}$

22) $8(-3) \div 6(4)$

23) $\left(-\frac{1}{2} - \frac{2}{3}\right)^2 \bullet \frac{18}{5} + 3\frac{1}{7} \div 7\frac{1}{3}$

24) $5xy + 8xy - 7xy + 3x$

25) $\frac{2}{15} - \left(\frac{6}{5}\right)^2 - 0.55(-40)$

26) $(\frac{4}{3}b + \frac{7}{9}) \bullet 9$

27) $-(0.45 - 0.32)^2 - 0.24 \div 0.6(0.4)$

28) $-6(-5b^2 + 6c - 9)$

29) $(7x^2 - 11xy + 4y^2) - (2x^2 - 3xy - 5y^3)$

30) $8(a^2 - 4a + 3b) - 7(b^2 - 8a + 5b)$

Estimate the following by rounding to the nearest hundred:

31) $12235 - 243(351)$

32) $2163 + 849 + 7 - 71$

Compare the following using <, >, or =:

33) $-\left|-7\right|$ ____ $69-5(13)$ 34) $-\frac{11}{26}$ ____ $-\frac{14}{39}$

Fill in the following chart (no rounding):

	Fraction	Decimal	Percent
35)		89.32	
36)			$71\frac{2}{3}\%$
37)	$\frac{16}{11}$		
38)			$\frac{2}{9}\%$
39)	$8\frac{3}{4}$		

Evaluate the following:

40) $\frac{-x-w^2+d}{xwd}$ when x = – 5, w = – 7, and d = 2

41) $wd(x-dw+x^2)$ when $x=-\frac{1}{8}$, $w=-\frac{3}{5}$, and $d=\frac{1}{3}$.

42) $\frac{Z-X}{Y^2}$ when X = – 8.2, Y = 0.3, and Z = – 1/4.

Find the x- and y-intercepts of the following lines:

43) $3x-4y=-12$

44) $y=5$

45) $x=-2$

46) $7x=4y-11$

Determine if the ordered pair is a solution to the given equation:

47) $8x-2y=6$; (2, 3)

48) $y=-\frac{2}{3}x-1$; (6, – 5)

49) $5+y=3x$; (3, 4)

50) $x=4$; (2, 4)

51) $y=3$; $(-\frac{2}{3}, 3)$

52) $2x-4y=-6$; (– 1, – 1)

Solve the following equations or inequalities:

53) $a - 7 = -23$

54) $-6c = 42$

55) $-3d + 7 + 8d \geq -21$

56) $8c - (3c - 15) = 35$

57) $8x - (3x + 5) = 7x - 3(2x + 9)$

58) $6(5x - 7) = 5(6x + 1)$

59) $\frac{3}{5}y - 5.8 = -\frac{7}{10}$

60) $0.8y + 1.9 < -0.6$

61) $-5.2(4x - 7) \leq 7.1 - (-0.9)$

62) $\frac{x}{8} - \frac{5}{18} = 2$

63) $\frac{5}{6}d + \frac{5}{12} = \frac{1}{3} - \frac{3}{4}$

64) Adelman's Antiques sells six Christmas Balls for $48 each. They made $9 profit on the first ball, lost $35 each on the second and third ball, made of profit of $9 and $15 on the fourth and fifth ball respectively and lost $59 on the last ball. What was their average profit or loss on the sale of the Christmas Balls?

65) The Yarn Barn of San Antonio sold 78 needlepoint kits between June and September of last year. If each kit required an average of 36 oz of yarn and if each oz of yarn cost $2, how much money did the Yarn Barn take in from the sale of yarn to supply all 78 kits?

66) $\frac{x}{-6.9} = \frac{0.3}{23}$

67) $\frac{\frac{4}{11}}{\frac{7}{9}} = \frac{x}{-\frac{66}{5}}$

68) The second angle of a triangle is twice the first angle. If the third angle is 6° more than three times the sum of the first and second angle, find the angles.

69) The height of a triangle is fixed at $\frac{3}{8}$ cm. For what lengths of the base will the area of the triangle be at least $\frac{63}{28}$ cm^2?

70) Use the formula $F = \frac{9}{5}C + 32^\circ$. to find what 48.2° F is equal to in Celsius.

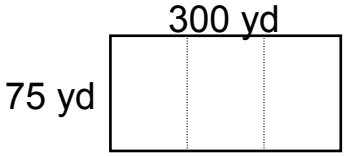
71) A man wants to fertilize a circular lawn with a diameter of 468 feet. How much area does he have to fertilize? A woman wants to fence in the lawn. If it costs $4.25 per foot to fence in the lawn, how much will she spend? (hint: $C = \pi d$ and $A = \pi r^2$; use $\pi \approx 3.14$)

Set up the equation and solve the following:

72) Juan bought a washer and dryer for $935. If the washer was $25 less than twice the dryer, find the cost of each.

73) To paint a particular house, Fard charges $645 for materials and $15 per hour for labor. If the total cost to paint the house was $817.50, how many hours did it take him to do the job?

74) A farmer wants to make a rectangular pen that is 300 yd by 75 yd long and subdivide into three pens, one for his pigs, one for his cow, and one for his chickens. How much fencing does he need to construct the pen?



75) A calculator costs $12. If this is 40% of the price ten years ago, what was the price 10 years ago?

76) If Elenita had to pay $340 in interest on a two-thirds of a year loan with a principal of $6,000, what is the annual interest rate? (hint: i = prt).

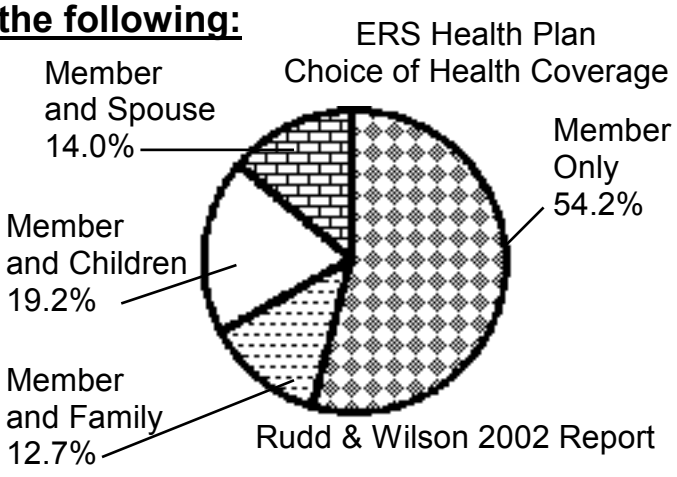
77) A value of a car decreases 30% after one year of ownership. If, after one year, a car is worth $12,400, how much was it worth new (to the nearest cent)?

78) A mutual fund increased from $11.75 to $15.04 per share. Find the percent increase.

79) Juanita invested a principal of $3000 at 11% simple interest. Find the amount she had in her account after three years. (hint: A = p + prt).

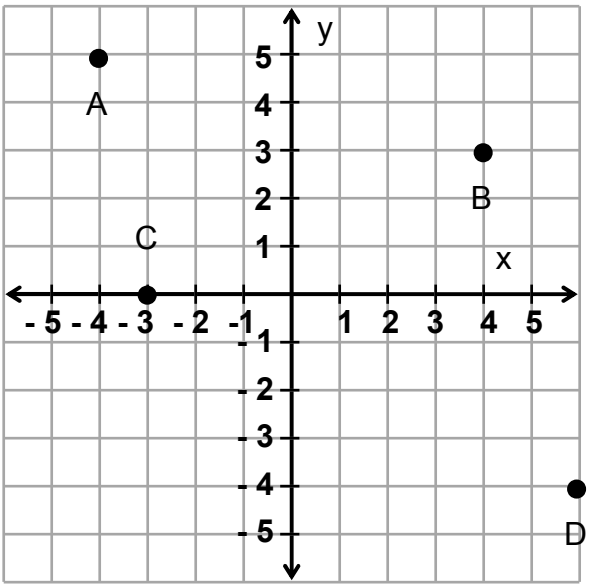
Use the Circle Graph to answer the following:

80) If there were a total of 521,000 employees using ERS in the state of Texas in 2002, find the number of employees that chose to get the either Member and Family or the Member and Children Health Coverage?

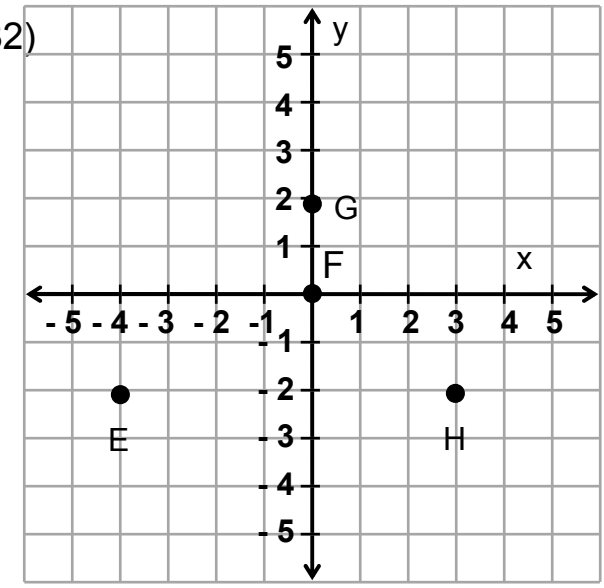


Find the coordinates of the following points:

81)



82)



Solve for the indicated variable:

83) Solve P = a + b + c for c.

84) Solve i = prt for r.

85) Solve $m = \frac{y}{x}$ for y.

86) Solve v = f – w for f.

87) Solve $x = \frac{1}{7}y + pg$ for y.

88) Solve A = P + Prt for t.

State the quadrant or axis where the following points are located:

89a) (7, 3)

89b) (3, – 8)

90a) (5, 0)

90b) (– 2, – 5)

91a) (– 1, 6)

91b) (0, – 4)

Using x for "a number," write the following as an equation and solve:

92) Seven more than a number is negative twelve.

93) The quotient of twice a number and 9 is 16 less than the product of the number and 5.

94) The difference of three times a number and 11 is four more than five times the sum of the number and 8.

Set up the equation and solve the following:

95) Three times the difference between twice a number and 7 is equal to the sum of 3 and a number, subtracted from 8 times a number.

96) Joy has two more than three times as many marbles than Matt. Together, they have 102 marbles. How many marbles does Joy have?

97) The length of a rectangle is 5 cm more than four times the width. The perimeter of the rectangle is 70 cm. What are the dimensions of the rectangle?

98) Find three consecutive integers such that the sum of the integers is forty-eight.

99) Juan is four times as old as Maria. If the sum of their ages is fifteen, how old is Maria now?

100) Two angles are called complementary angles if the sum of their measures is 90˚. If the complement of an angle is six more than five times the angle, find the angles.

101) Together, a truck and a trailer cost $27,700. If the price of the truck is $800 less than twice the cost of the trailer, find the cost of the truck.

102) To repair a window sill, Don cut a 13-foot board into two sections. If the first section was a foot longer than twice the second section, find the length of each section.

103) Mara bought two pairs of shoes. The more expense pair was $8 less than twice the cheaper pair. If the difference in price was $11.58, find the price of each pair.

104) Juanita scored 73%, 85% and 71% and her first three tests. What possible scores can she get on the fourth test to have at least an 80% average?

105) If the area of a trapezoid is 56.28 cm^2 when the height is 5.6 meters and b_2 is 4.5 meters less than twice b_1, find b_1 and b_2.
(hint: $A = \frac{1}{2}(b_1 + b_2)h$)

106) Find two consecutive integers such that three times the first is nine more than twice the second.

Graph the following lines by making a table of at least three ordered pairs and plotting the points:

107) $x + y = 5$

108) $y = 2x - 4$

109) $3x = -9$

110) $6y + 5 = -7$

111) $x - 3y = 6$

112) $x = -4y$

113) $y = -\frac{2}{3}x + 4$

114) $y - x = 0$

Solve the following:

115) The amount of consumer debt is approximated by the equation: $y = 103.37x + 1873.1$ where y is the amount of debt in billions of dollars x years after 2001.
   a) Find y when x = 4 and write it as an ordered pair.
   b) Interpret the meaning of the ordered pair found in part a.

If a and b are positive mixed numbers, use critical thinking to determine which of the statements are always true, sometimes true, or never true.

116)
   a) a + b is a greater than 1.
   b) a•b is a greater than 1.
   c) – a – b is greater than 1.
   d) a ÷ b is a greater than 1.
   e) a – b is greater than 1.

Without working the problem, use critical thinking to determine which answers are *unreasonable*:

117) On a calm day, the average wind speed was:

a) 55 mph b) 3 mph c) – 4 mph d) 6 mph e) 143 mph

118) If gallon of paint costs $18, then a quart of paint costs:

a) $69 b) $75 c) $5 d) – $6 e) $23

119) The volume of cone is:

a) $-229\ in^3$ b) $26.69\ in^3$ c) $452\ dm^3$ d) $-2\ m^3$ e) $-3{,}587\ in^3$

In the problem below, the student has made an error. Use critical thinking to find and correct the error. Then finish working the problem.

120) Find the coefficient of the term: $-9x^2y^4z$.

Solution:

The coefficient is 9.

121) Solve $\frac{3x-4}{6} + 2 = \frac{2}{3}$

Solution:

$6 \bullet \frac{3x-4}{6} + 2 = 6 \bullet \frac{2}{3}$

$3x - 4 + 2 = 4$

$3x - 2 = 4$

$+ 2 = + 2$

$3x = 6$

$\frac{3x}{3} = \frac{6}{3}$

$x = 2$

122) Simplify: $3x - 5$ subtracted from $-4x + 8$.

Solution:

$-4x + 8 - 3x - 5$

$= -4x - 3x + 8 - 5$

$= -7x + 3.$

Use critical thinking to answer the following:

123) For what values a and b is the expression "a – b = b – a" true.

a) a and b have to be real numbers.
b) a and b have to be integers.
c) a – b = b – a" is never true.
d) a and b are equal.
e) a and b have to be irrational numbers.

124) Given that d is an integer, which of the statement(s) below is (are) always true:

a) d is also a rational number.
b) d is also a whole number.
c) d is also a natural number.
d) d is also an irrational number.
e) d is also a real number.

Answers:

1) -5 2) -175 3) 15 4) $-\frac{142}{55}$ 5) -113 6) 84

7) -1 8) -121 9) $-6.1x - 3y + 6.8z$ 10) $-32x - 7$

11) $\frac{14}{3}x^2 - \frac{1}{7}x + \frac{71}{33}$ 12) $-54b + 106$ 13) $-66x + 75$ 14) -192

15) $\frac{12}{7}$ or $1\frac{5}{7}$ 16) -625 17) $-\frac{35}{18}$ or $-1\frac{17}{18}$ 18) -5

19) 0 20) 1.6 21) $-\frac{15}{16}x$ 22) -16 23) $\frac{23}{70}$ 24) $6xy + 3x$

25) $\frac{1552}{75}$ 26) $12b + 7$ 27) -0.1769 28) $30b^2 - 36c + 54$

29) $5x^2 - 8xy + 4y^2 + 5y^3$ 30) $8a^2 + 24a - 11b - 7b^2$ 31) $-67{,}800$ 32) 2900

33) $<$ 34) $<$ 35) $\frac{2233}{25}$ or $89\frac{8}{25}$; 8932% 36) $\frac{43}{60}$; 0.716

37) $1.\overline{45}$; $145\frac{5}{11}\%$ 38) $\frac{1}{450}$; $0.00\overline{2}$ 39) 8.75; 875% 40) $-\frac{3}{5}$

41) $-\frac{29}{1600}$ 42) $\frac{265}{3}$ 43) x-int: $(-4, 0)$ y-int: $(0, 3)$

44) x-int: None y-int: $(0, 5)$ 45) x-int: $(-2, 0)$ y-int: none

46) x-int: $(-\frac{11}{7}, 0)$ y-int: $(0, \frac{11}{4})$ 47) No 48) Yes 49) No 50) no

51) Yes 52) No 53) $a = -16$ 54) $c = -7$ 55) $d \geq -5\frac{3}{5}$ 56) $c = 4$

57) $x = -5\frac{1}{2}$ 58) No Solution 59) $y = 8\frac{1}{2}$ 60) $y < -3.125$

61) $x \geq \frac{71}{52}$ 62) $x = \frac{164}{9}$ 63) $d = -1$

64) Adelman's lost $16 per ball.

65) The Yarn Barn took in $5,616 from the sale of the yarn.

66) $x = -0.09$ 67) $-\frac{216}{35}$ 68) The angles are 14.5°, 29°, and 136.5°.

69) The base is at least 12 cm. 70) The temperature is 9° C.

71) He has to fertilize $\approx 171{,}934$ ft^2 of lawn. She will spend $6245.46.

72) The dryer was $320 and the washer was $615.

73) It took him $11\frac{1}{2}$ hours. 74) He will need 900 yards of fencing.

75) It was $30. 76) The interest rate was 8.5%.

77) The car was worth $\approx$ $17,714.29. 78) It increased by 28%.

79) She had about $3990. 80) There were 166,199 Employees.

81) A: $(-4, 5)$ B: $(4, 3)$ C: $(-3, 0)$ D: $(6, -4)$

82) E: $(-4, -2)$ F: $(0, 0)$ G: $(0, 2)$ H: $(3, -2)$ 83) $c = P - a - b$

84) $r = \frac{i}{pt}$ 85) $y = mx$ 86) $f = v + w$ 87) $y = 7x - 7pg$ 88) $t = \frac{A-P}{Pr}$

89a) Quadrant I 89b) Quadrant IV 90a) Positive x-axis 90b) Quadrant III

91a) Quadrant II 91b) Negative y-axis 92) $x = -19$

93) $x = \frac{144}{43}$ 94) $x = -27.5$ 95) $x = -18$ 96) Joy has 77 marbles.

97) The length is 29 cm and the width is 6 cm. 98) The integers are 15, 16, & 17.

99) Maria is 3 years old. 100) The angles are 14˚ and 76˚.

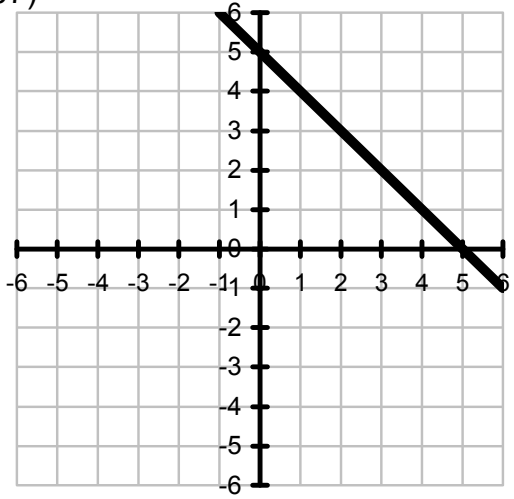
101) The trailer was $9500 and the truck was $18,200.

102) The two pieces were 4 ft and 9 ft in length.

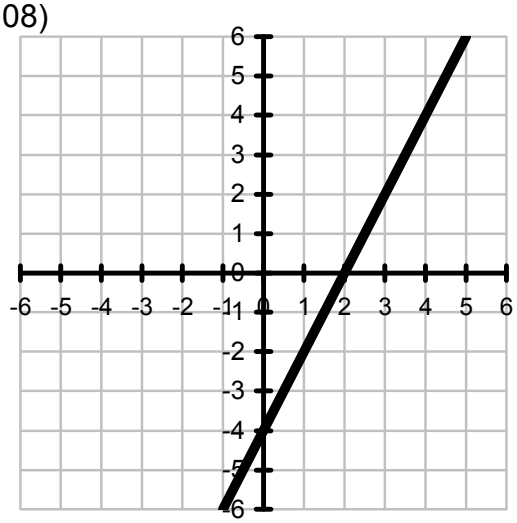
103) The shoes were $19.58 & $31.16. 104) She must score at least a 91%.

105) $b_1 = 8.2$ m and $b_2 = 11.9$ m 106) The integers are 11 and 12.

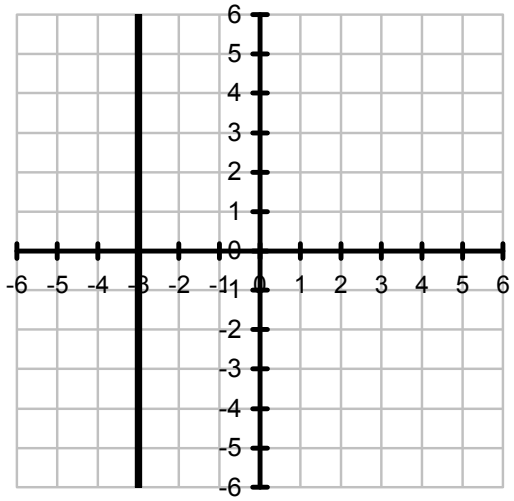
107)



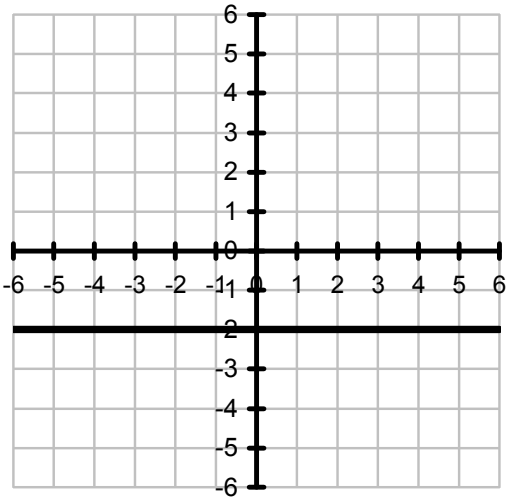
108)



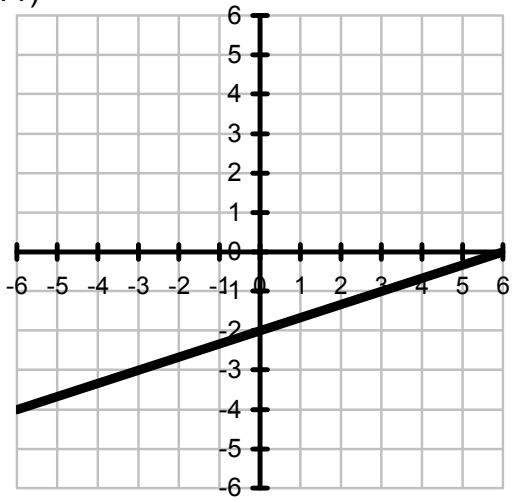
109)



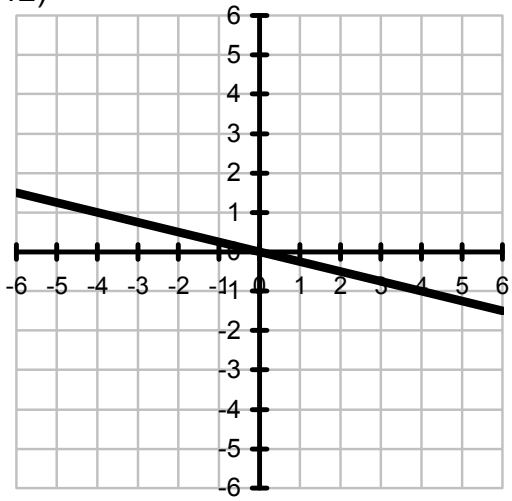
110)



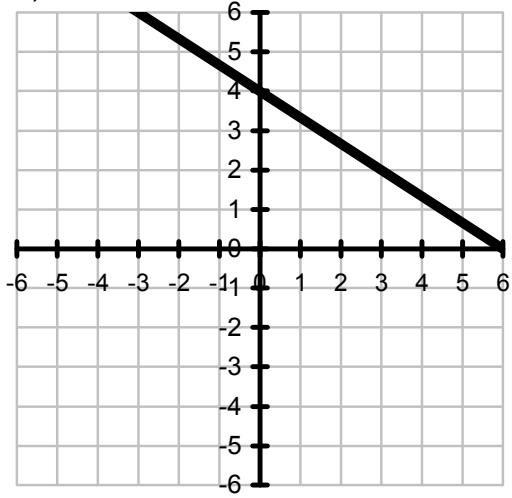
111)



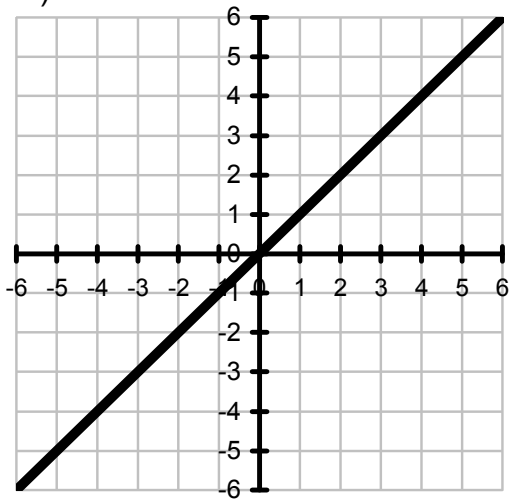
112)



113)



114)



115a) (4, 2286.58)

115b) In 2005, the consumer debt was approximately $2,286.58 billion

116a) always 116b) always 116c) never 116d) sometimes 116e) sometimes

117) a, c, & e 118) a, b, d, & e 119) a, d, & e 120) The coefficient is – 9.

121) $x = -\frac{4}{3}$ 122) $-7x + 13$ 123) d 124) a & e