

MATH 1050 Course Review Answers

Directions: Some of the questions on this review may require the use of the graphing calculator; others may require you to show all work. If an algebraic answer is required and work is not shown, you may not receive full credit on the final exam. On the final exam you must show work in the spaces provided and show graphs on the grids provided. Partial credit may be awarded on most problems. Reduce fractions to lowest terms. The final exam counts as 25% of your overall grade and contains 200 possible points. You will have 1 hour and 50 minutes to complete the final exam, but this review will most likely take you at least twice as long to complete.

1)

a) Rational : $\{2, 5, 0, \frac{1}{3}, 1.12, 1.\bar{3}, 3.14, -13\}$

b) Natural : $\{2, 5\}$

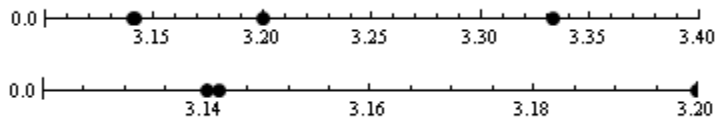
c) Integer : $\{2, 5, 0, -13\}$

2)

a) Positive : $\{\frac{-2}{-3}, \frac{5}{1.12}, \pi, \frac{15}{3}, 1.\overline{345}, \frac{2\pi}{\pi}\}$

b) Negative $\{-2^2, -7, \frac{13}{-3}\}$

3)



4) c & f

5) d & f

6) a, b, e & f

7) C

8)

a) $\frac{3}{\sqrt{14}}$

b) -34

c) $\frac{1}{4}$

9) b & d

10) b

11) $\frac{128}{3}$

12)

a) $\frac{49}{36}$

b) 1.3611

13) Yes : $3 \cdot 0 - 12 = -3(4 - 0)$

14)

a) $\frac{43}{7}$

b) $-\frac{39}{22}$

c) No solution

d) All real numbers

15)

a) $f = \frac{c-4h-4p}{9}$ grams

b) $f = \frac{346-4(46)-4(18)}{9} = 10$ grams

16)

a) $S = 2\pi \cdot 2.7^2 + 2\pi \cdot 2.7 \cdot 11.3 \text{ m}^2 = 75.6\pi \text{ m}^2 \approx 237.50 \text{ m}^2$

b) $h = \frac{S - 2\pi r^2}{2\pi r} \text{ ft}$

c) $h = \frac{890 - 2\pi 7^2}{2\pi r} \text{ ft} \approx 13.24 \text{ ft}$

17)

a) $2L + 2\frac{L}{2} = 2L + L = 3L$

b) $\$0.08d$

c) $\$89.95y$

d) $\frac{1}{2} \frac{W}{2} W = \frac{W^2}{4}$

18) $W = 12 \text{ ft} \ \& \ L = 20 \text{ ft}$

19) $4 \text{ ft}, 8 \text{ ft}, \text{ and } 33 \text{ ft}$

20) $\$452.38$

21) $\$2255.43$

22) $32^\circ, 64^\circ, 84^\circ$

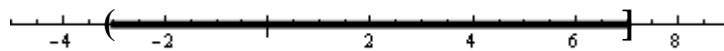
23) 11.94%

24) 32.5 miles

25)

a)

i. $\{r \mid -3 < r \leq 7\}$

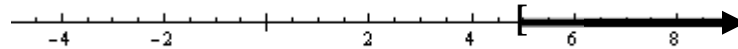


ii.

iii. $(-3, 7]$

b)

i. $\{x \mid 5 \leq x\}$



ii.

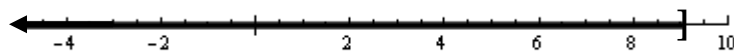
iii. $[5, \infty)$

26)

a) $(-\infty, -\frac{5}{12}]$

b) $(-\infty, -\frac{18}{17})$

27)



a)



b)

28) Negative infinity is ALWAYS written on the left.

29) Infinity ALWAYS has a parenthesis.

30) Yes : $2(-5) - 5(-4) = -10 + 20 = 10$. The coordinates satisfy the equation.

(5, 0), (0, -2), (10, 2), & (-10, -6)

31)

a)

Hours (h)	1	1.25	1.5	1.75	2	2.25	2.5	2.75	3
Charge (C)	6.25	7.81	9.38	10.94	12.5	14.06	15.63	17.19	18.75

b) $6.25 \frac{\$}{hr} * 8hr = \50

32) (-2, 0) & (0, 4)

33)

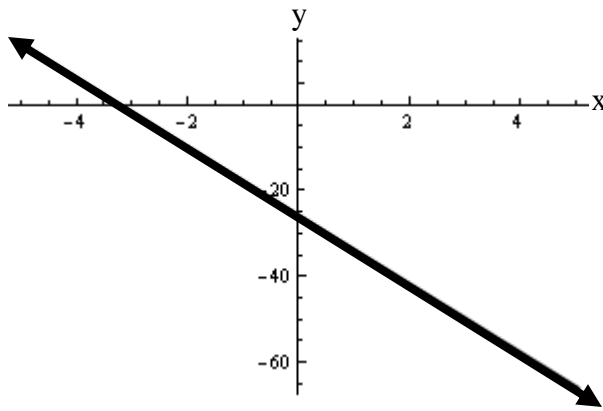
a) Yes, coordinates satisfy equation

b) No, $0 \neq 3(3)$

c) No, $0 \neq 2(3) - 2$

d) No, $0 \neq 2$

34)



35) A vertical line has no slope or its slope is undefined. On the other hand, a horizontal line has a slope. The measurement of its slope is 0.

36) $y = -\frac{5}{4}x + \frac{40}{3}$ Slope = $-\frac{5}{4}$ $(0, \frac{40}{3})$

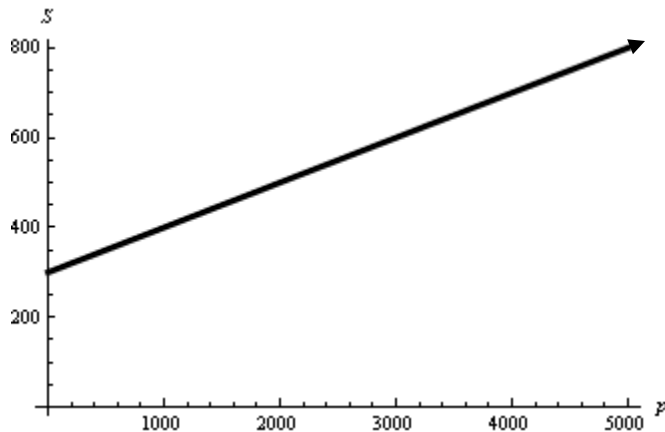
37)

a) A salesperson who sells \$1000 of hardware each week will earn a weekly salary of \$400.

b) \$535

c) \$4500

d)



e) $[0, 5000] \times [0, 800]$

38)

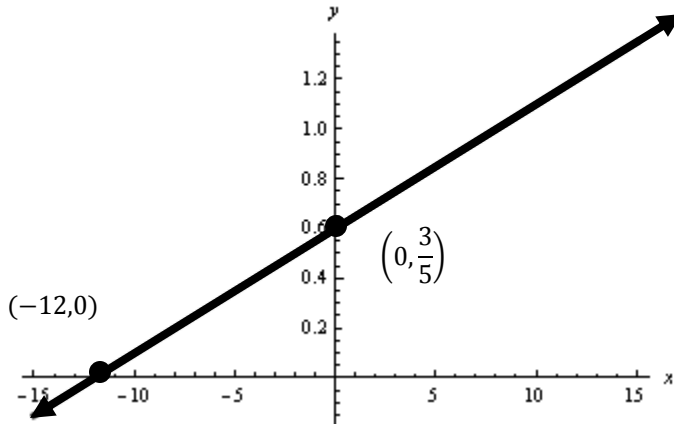
- a) (0,500)
- b) (750,0)
- c) 466 chairs

39)

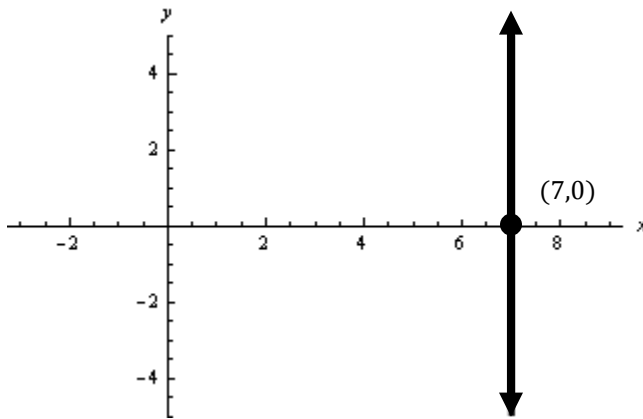
- a) Yes
- b) Yes
- c) No
- d) Yes
- e) No
- f) Yes

40)

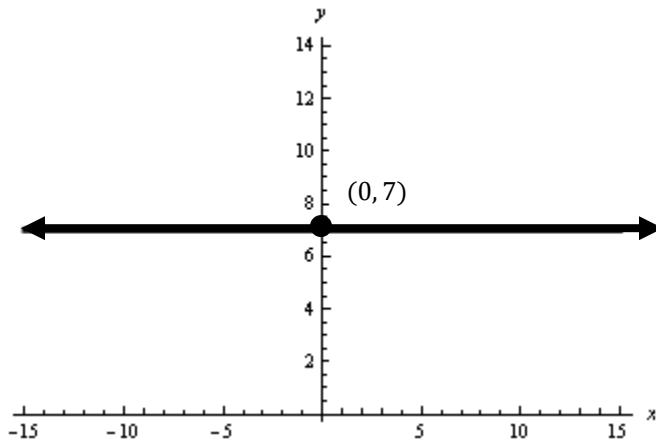
a)

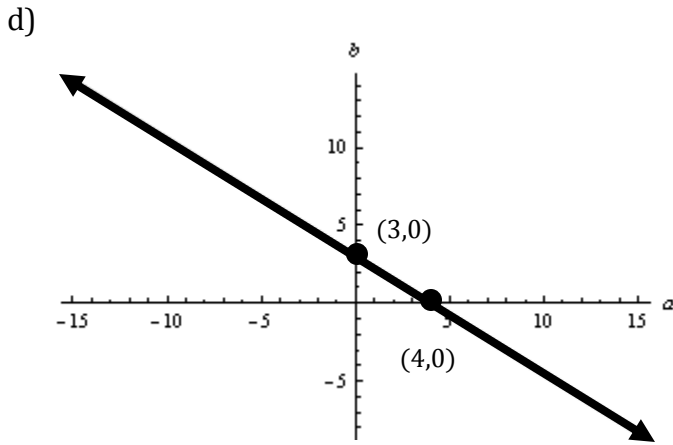


b)



c)





41) $-\frac{3}{4}$

42) $-\frac{5}{36}$

43) B

44) A

45) Slope between $(4, -8)$ & $(1, -4)$ is $-\frac{4}{3}$

Slope between $(1, -4)$ & $(-4, -2)$ is $-\frac{2}{5}$

46) Slope between $(-4, -7)$ & $(\frac{1}{2}, 2)$ is 2

Slope between $(\frac{1}{2}, 2)$ & $(6, 13)$ is 2

Slope between $(6, 13)$ & $(-4, -7)$ is 2

47)

a) $y = 3$

b) $x = 5$

c) $y = 3$

d) $x = 5$

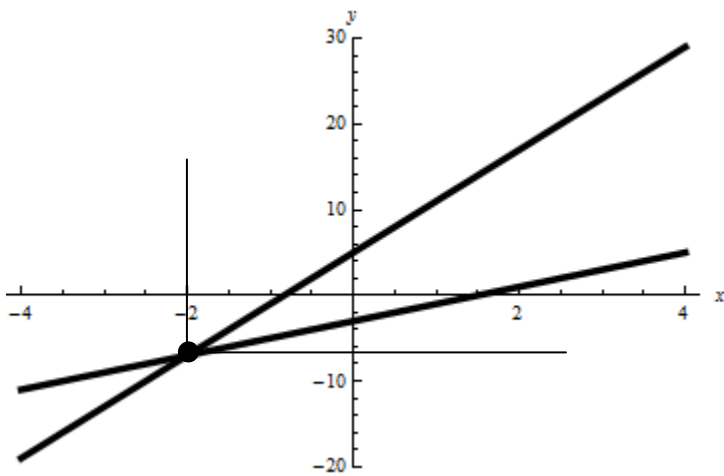
48) $y = 45x + 2250$; \$2925

49) Parallel lines have equal slopes. Perpendicular lines have slopes which are negative reciprocals.

(vertical lines are parallel to each other; vertical and horizontal lines are perpendicular.)

50) A and B must satisfy $\frac{3}{5} = \frac{B+6}{A+1}$; some possibilities are $(4, -3)$ or $(9, 0)$.

51)



Approximately: $x = -2$ & $y = -7.5$

52) Approximately

a) $(-2.92, -12.75)$

b) $(16.61, -48.55)$

53)

a) $(\frac{95}{48}, \frac{59}{8})$

b) $(-\frac{399}{290}, -\frac{236}{29})$

c) $(-\frac{11}{20}, -\frac{41}{20})$

d) $(-\frac{1}{4}, \frac{7}{2})$

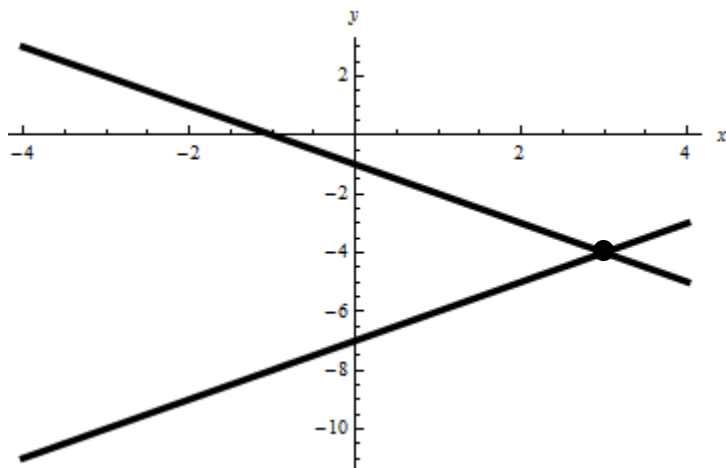
54) No. The second equation would claim: *negative number = positive number*

55) No. This is a linear system. The two lines cannot intersect, intersect at one point, or actually be the same line. We see two different lines with one intersection already. That has to be the only intersection.

56) Two lines do not intersect: no solutions; Two lines intersection in exactly one point: exactly one solution; Two lines are actually the same line: an infinite number of solutions.

57) No solutions, exactly one solution, and infinite number of solutions.

58)



$x + y = -1$ and $x - y = 7$

59) c & d

60) The slopes have to be different.

61) The slopes have to be equal.

62)

a) Let x represent the number of milliliters of 41% solution.

b) Let y represent the number of milliliters of 72% solution.

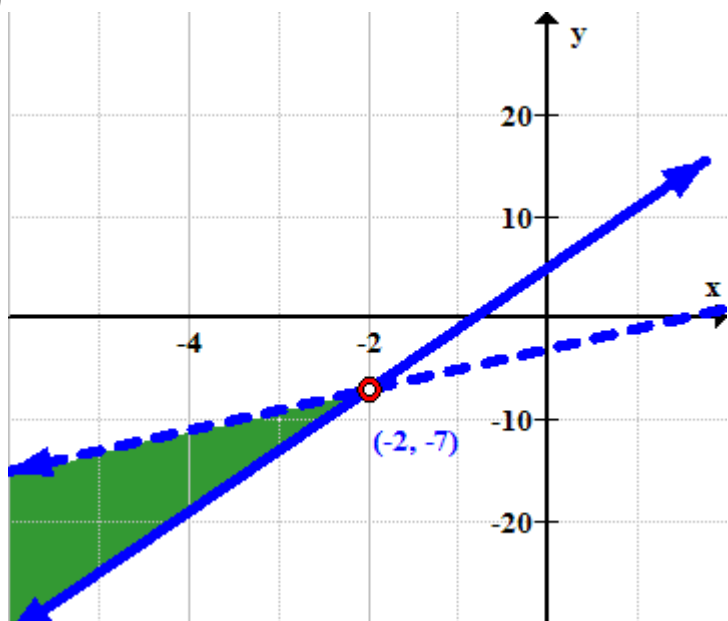
c) System: $x + y = 210$ and $0.41x + 0.72y = 0.53(210)$

63) 20 liters and 10% solution and 30 liters of 60% solution

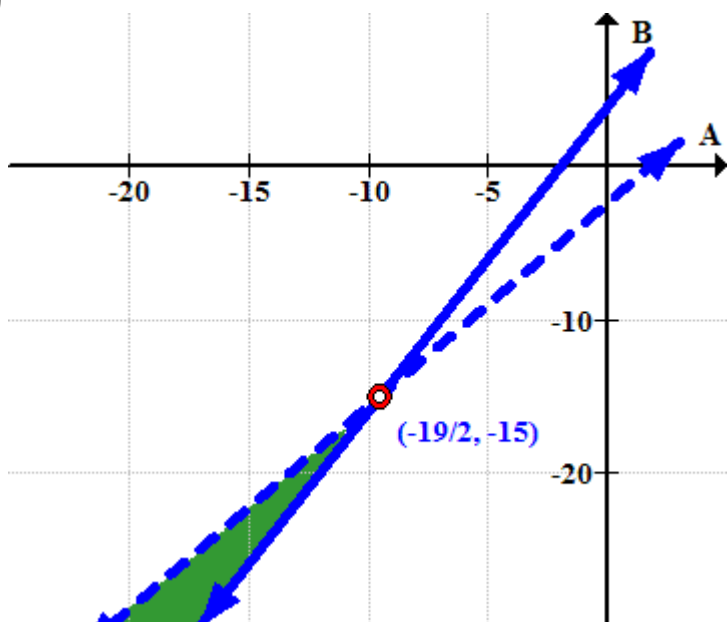
64) 15 sledge hammers and 27 claw hammers

65) 200 miles

66)



67)

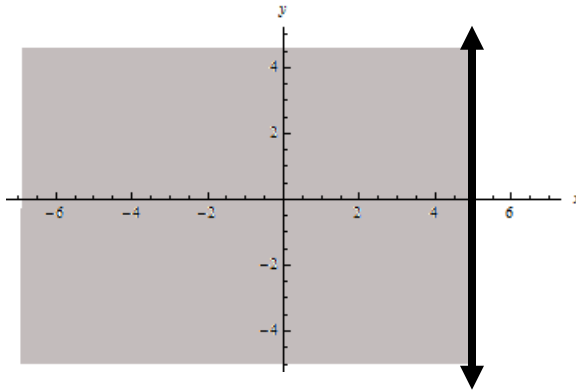


68)

a)



b)



69)

a) 5

b) $\frac{-3y^3}{x^2}$

c) $\frac{6}{a^5}$

d) $\frac{k}{s^2}$

e) $\frac{1}{h^4}$

70) 4

71)

a) $5x^2 - 7xy - 6y^2$

b) $x^3 - 1$

c) $25x^2 - 40xy + 16y^2$

d) $-19x - 18$

e) $4m^2 - 9n^2$

72) $3x - 1 + \frac{2}{x}$

73) $\frac{3x^2 - x + 2}{x}$

74) $7x + 5$

75) $7x + 5$

76) $2x^2 - 4x + 11 - \frac{26}{x+2}$

77) $\frac{2x^3 + 3x - 4}{x+2}$

78) 3.234×10^{-35}

79) 3.1×10^{10}

80) 0.00031

81) 7.5×10^6

82)

a) $(3y + 1)(y - 3)$

b) $2m^2(m - 6)(m + 6)$

c) $(k - 2)(k^2 + 2k + 4)$

d) $(x - 7)(x + 6)$

83)

a) $(b + y)(3 + x)$

c) $9w^2(w^2 + 4)$

b) $-3A(A - B^2)$

d) $(7T - 6)(7T + 6)$

84)

a) $(6G - 5)^2$

b) $(3x + 5y)(9x^2 - 15xy + 25y^2)$

85) $(h - 2)(h^2 + 6h - 3)$

86) $3x^2y(x^4y^4 - 2x^3y^3 + 5x^3y^2 - 6x^2)$

87) $x^{\frac{1}{2}}(x^{\frac{5}{2}} + 4x^{\frac{3}{2}} - 15x + 6)$

88) $3(-1)^7 - (-1)^5 + 2(-1)^4 + 5(-1)^2 = 5 \neq -15 = 13(-1) - 2$

89) $3(-1)^7 - (-1)^5 + 2(-1)^4 + 5(-1)^2 = 5 = 13(-1) + k; k = 18$

90)

a) $\{0, \frac{5}{2}\}$

b) $\{-\frac{11}{6}, 4\}$

c) $\{-\frac{1}{2}, \frac{4}{3}\}$

d) $\{-3, 0, 3\}$

91) $\{-2, 3\}$

92) $\{-2, 3\}$

93) 4 seconds

94) 9cm & 12cm

95) False. The resulting polynomial would factor into the product of the two original polynomials.

96) True. You add exponents when multiplying polynomials