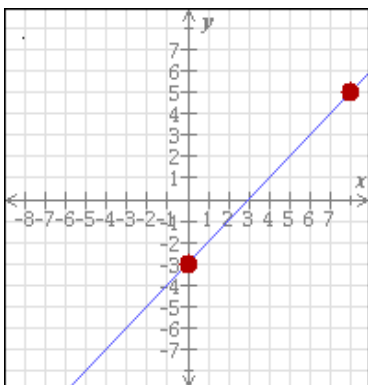


ALEKS® Math 100 Mock Final #3

Beginning Algebra / Math 100 – Master No Book (Prof. Miller)

Student Name/ID:

1. Write an equation of the line below.



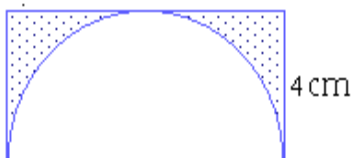
2. Solve for v

$$-\frac{5}{9}v = -10$$

Simplify your answer as much as possible.

3. A rectangle is placed around a semicircle as shown below. The width of the rectangle is 4 cm

Find the area of the shaded region. Use the value 3.14 for π and do not round your answer. Be sure to include the correct unit in your answer.



4. Simplify.

$$\frac{x^5}{x^{-5}}$$

Write your answer with a positive exponent only.

5. Solve for y

$$C = 5(y - 4)$$

6. Solve for v .

$$-7 = 3(v + 3) - 5v$$

Simplify your answer as much as possible.

7. Solve for v .

$$3v + 5 = -7$$

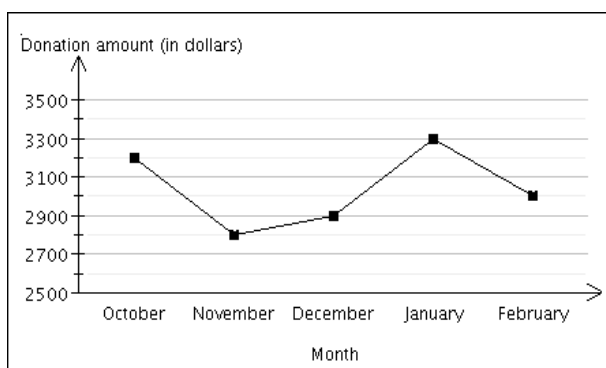
Simplify your answer as much as possible.

8. Solve for x .

$$19 = \frac{4x+3}{5} + \frac{4x+4}{3}$$

Simplify your answer as much as possible.

9. The graph below shows how much money was given to a charity over five months.



- (a) What was the least donation amount in a month?
- (b) When did the greatest increase in donations occur?

10. A sofa is on sale for 34% off. The sale price is \$429

What is the regular price?

11. Simplify.

$$2w - 5(-6x + 4w) + 3x$$

12. Simplify.

$$(-4x^2 + 5x + 4) - (-6x^2 + 4x + 6) + (2x^2 + 6x - 1)$$

13. Factor completely.

$$4u^5 - 18u^4 - 10u^3$$

14. Write equations for the horizontal and vertical lines passing through the point $(-7, 3)$

horizontal line:

vertical line:

15. The equation of a line is given below.

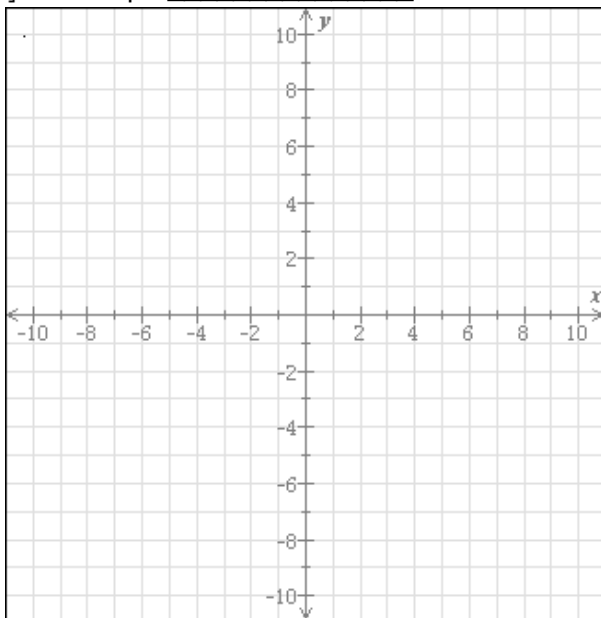
$$-6x - 2y = -2$$

Find the slope and the y -intercept.

Then use them to graph the line.

slope: _____

y -intercept: _____



16. Evaluate the expression when $m = -3$

$$m^2 + 5m - 4$$

17. Use the distributive property to remove the parentheses.

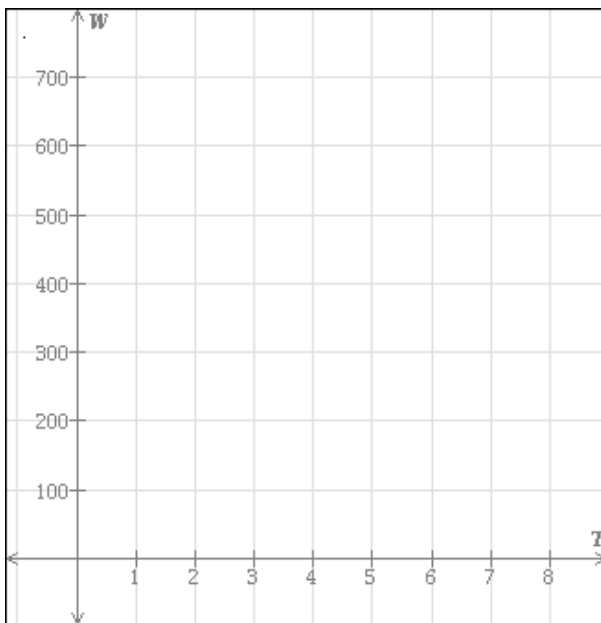
$$-4(4y - 2u - 3)$$

18. Find an ordered pair (x, y) that is a solution to the equation.

$$5x - y = 5$$

19. Owners of a recreation area are filling a small pond with water. They are adding water at a rate of 30 liters per minute. There are 500 liters in the pond to start.

Let W represent the amount of water in the pond (in liters), and let T represent the number of minutes that water has been added. Write an equation relating W to T and then graph your equation using the axes below.



20. The price of a notebook was \$3.70 yesterday. Today, the price fell to \$3.20 Find the percentage decrease. Round your answer to the nearest tenth of a percent.
21. Find the slope of the line passing through the points $(-3, 3)$ and $(5, 9)$

22. Find the x -intercept and y -intercept of the line.

$$3x - 6y = -10$$

x -intercept: _____

y -intercept: _____

23. A Web music store offers two versions of a popular song. The size of the standard version is 2.2 megabytes (MB). The size of the high-quality version is 4.8 MB. Yesterday, there were 1050 downloads of the song, for a total download size of 4000 MB. How many downloads of the high-quality version were there?

24. Calculate.

$$\frac{6 \times 10^8}{5 \times 10^5}$$

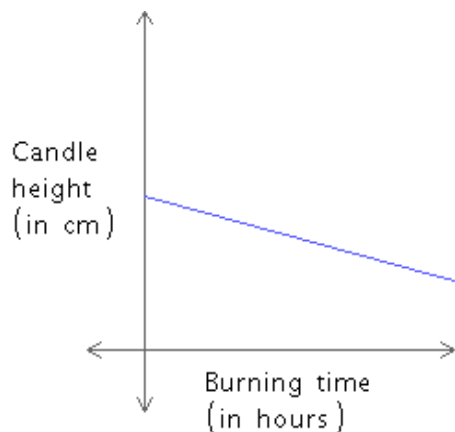
Write your answer in scientific notation.

25. Solve for u

$$-4(-4u + 5) - 3u = 4(u - 4) - 7$$

Simplify your answer as much as possible.

26. Suppose that the height (in centimeters) of a candle is a linear function of the amount of time (in hours) it has been burning. After 6 hours of burning, a candle has a height of 19.2 centimeters. After 23 hours of burning, its height is 14.1 centimeters. What is the height of the candle after 11 hours?



27. Factor by grouping.

$$uy - 14u + 7u^2 - 2y$$

28. Evaluate.

$$-3 \cdot (-5) - \left((-2)^2 - 3 \right)^3$$

29. Evaluate the expressions.

$$-(2)^0 =$$

$$\left(-\frac{1}{5}\right)^0 =$$

30. Factor.

$$z^2 - 9z + 18$$

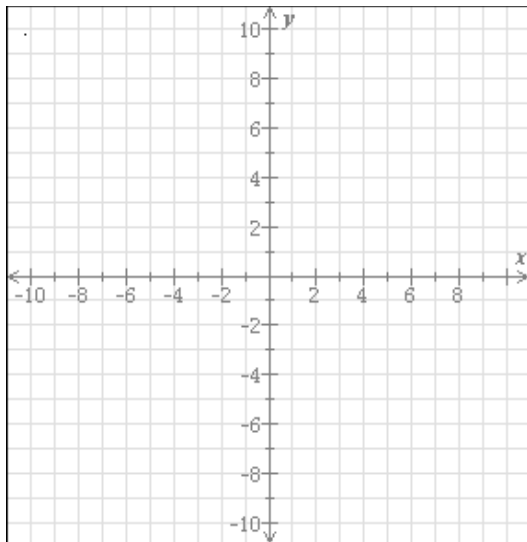
31. Rewrite the expression without using a negative exponent.

$$2n^{-4}$$

Simplify your answer as much as possible.

32. Graph the line.

$$y = -\frac{1}{4}x + 6$$

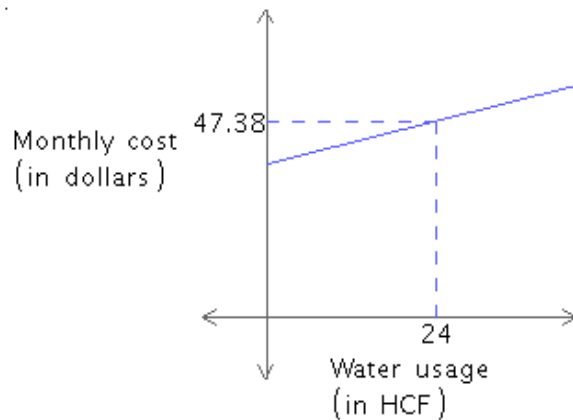


33. Rewrite without parentheses and simplify.

$$(x - 7)^2$$

34. Suppose that a household's monthly water bill (in dollars) is a linear function of the amount of water the household uses (in hundreds of cubic feet, HCF). When graphed, the function gives a line with a slope of 1.65. See the figure below.

If the monthly cost for 24 HCF is \$47.38, what is the monthly cost for 27 HCF?



35. Ann has scored 76, 68, 81, and 74 on her previous four tests. What score does she need on her next test so that her average (mean) is 75?

36. Two trains leave the station at the same time, one heading east and the other west. The eastbound train travels at 75 miles per hour. The westbound train travels at 85 miles per hour. How long will it take for the two trains to be 224 miles apart?

Do not do any rounding.

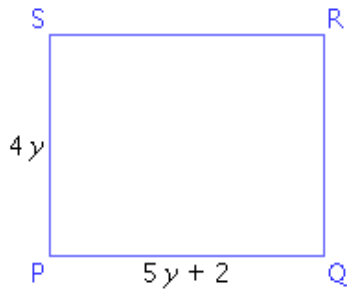
hours

37. Find the greatest common factor of these two expressions.

$$8y^6v^7w^4 \text{ and } 20y^3w^5$$

38. The perimeter of the rectangle below is 130 units. Find the length of side \overline{RS}

Write your answer without variables.



39. Chris just bought a refrigerator for \$597. He paid \$89.40 in a down payment and will pay the rest in 6 equal installments. How much does he need to pay for each installment?

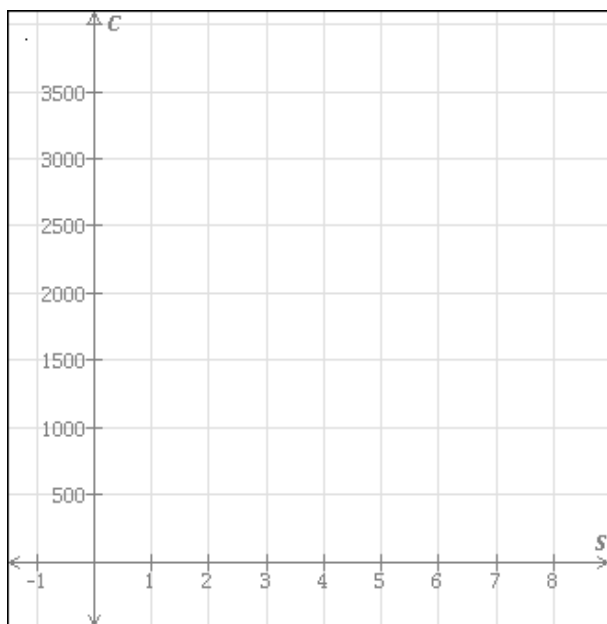
40. Simplify.

$$7ux^{-4} \cdot 2u^{-6}v^9v^{-9} \cdot 6x^8$$

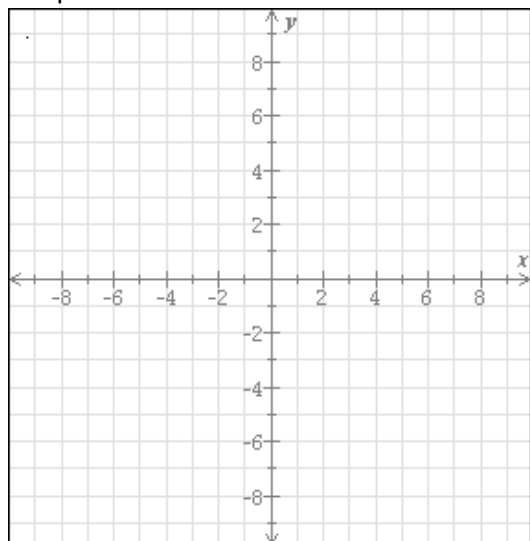
Use only positive exponents in your answer.

41. The Sugar Sweet Company is going to transport its sugar to market. It will cost \$2800 to rent trucks, and it will cost an additional \$100 for each ton of sugar transported.

Let C represent the total cost (in dollars), and let S represent the amount of sugar (in tons) transported. Write an equation relating C to S and then graph your equation using the axes below.



42. Graph the line $x = -1$



43. Rewrite the following without an exponent.

$$\left(\frac{2}{7}\right)^{-2}$$

44. Factor by grouping.

$$3y^3 + 5y^2 - 6y - 10$$

45. Evaluate the following.

$$|6-11| - |-14|$$

46. Simplify the following expression.

$$5x^2 - 7 - 10x^2 + 8 + 4x$$

47. A garden table and a bench cost \$794 combined. The garden table costs \$94 more than the bench. What is the cost of the bench?

48. Evaluate.

$$6 + 3 \cdot 4^2$$

49. Amanda purchased a prepaid phone card for \$15. Long distance calls cost 6 cents a minute using this card. Amanda used her card only once to make a long distance call. If the remaining credit on her card is \$13.92, how many minutes did her call last?

50. Factor the following expression.

$$24u^2w^6y^6 - 28u^4w^7$$

51. Rewrite without parentheses.

$$-5b^6c(6b^4 + 3b^5c^3 - 9c^3)$$

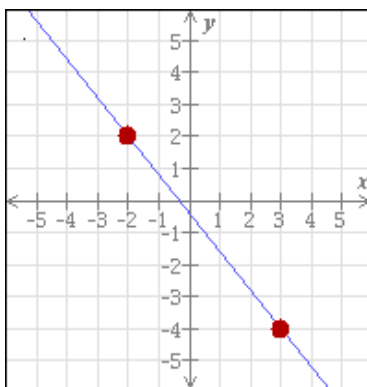
Simplify your answer as much as possible.

52. Solve for u

$$-\frac{4}{3}u - \frac{1}{2} = -\frac{3}{5}$$

Simplify your answer as much as possible.

53. Find the slope of the line graphed below.



54. Divide.

$$\frac{18x^6 - 24x^5}{3x^2}$$

Simplify your answer as much as possible.

55. Consider the line $y = \frac{3}{4}x + 7$

(a) Find the equation of the line that is parallel to this line and passes through the point $(-8, 5)$

(b) Find the equation of the line that is perpendicular to this line and passes through the point $(-8, 5)$

56. Multiply.

$$(y+1)(y-6)$$

Simplify your answer.

57. The table gives the temperature (in $^{\circ}\text{F}$) in five cities at 6 a.m. on the same day. Use the table to answer the questions.

City	Temperature ($^{\circ}\text{F}$)
Phoenix	81
Seattle	41
Houston	58
Milwaukee	-15
Fairbanks	-24

- (a) How much lower was the 6 a.m. temperature in Fairbanks than in Houston?
 $^{\circ}\text{F}$ lower
- (b) By noon, the temperature in Milwaukee had risen by 24°F .
What was the temperature there at noon?
 $^{\circ}\text{F}$

58. Evaluate the expression when $b = -7$ and $c = 6$

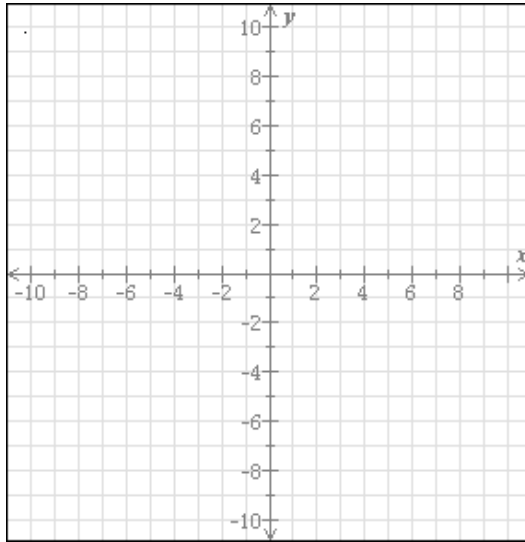
$$b - 4c$$

59. Multiply.

$$(u - 8)(u + 8)$$

Simplify your answer.

60. Graph the line with slope -1 passing through the point $(3, -2)$



Math 100 Mock Final #3 Answers for class Beginning Algebra / Math 100 – Master No Book

1. $y = x - 3$

2. $v = 18$

3. 6.88 cm^2

4. x^{10}

5. $y = \frac{C}{5} + 4$

6. $v = 8$

7. $v = -4$

8. $x = 8$

9. (a) What was the least donation amount in a month?
\$2800

(b) When did the greatest increase in donations occur?
December to January

10. \$650

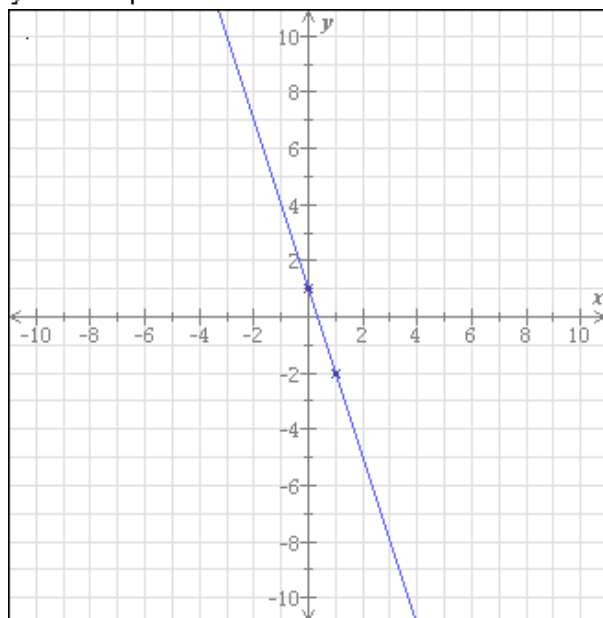
11. $-18w + 33x$

12. $4x^2 + 7x - 3$

13. $2u^3(u-5)(2u+1)$

14. horizontal line: $y = 3$
vertical line: $x = -7$

15. slope: -3
y-intercept: 1

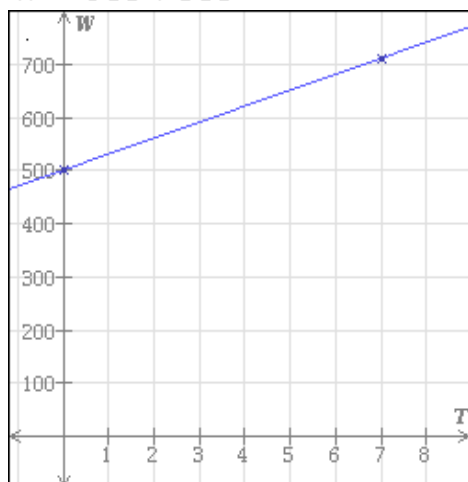


16. -10

17. $-16y + 8u + 12$

18. One possible answer is $(x, y) = (0, -5)$

19. $W = 500 + 30T$



20. 13.5%

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

22. x-intercept: $-\frac{10}{3}$

y-intercept: $\frac{5}{3}$

23. 650 downloads

24. 1.2×10^3

25. $u = -\frac{1}{3}$

26. 17.7 centimeters

27. $(y + 7u)(u - 2)$

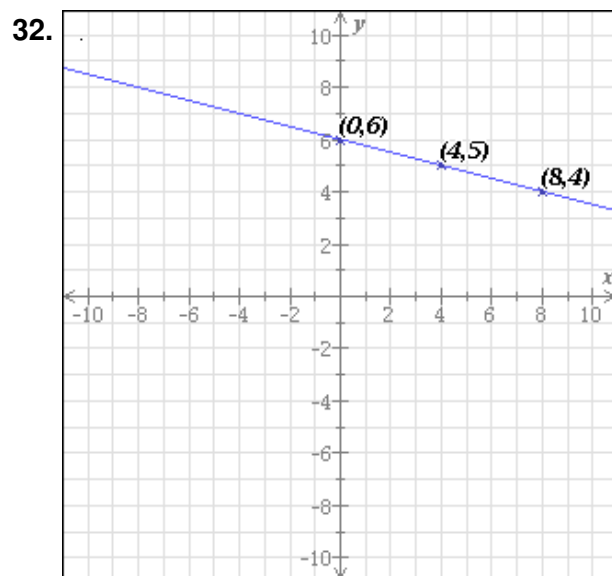
28. 14

29. $-(2)^0 = -1$

$\left(-\frac{1}{5}\right)^0 = 1$

30. $(z - 3)(z - 6)$

31. $\frac{2}{n^4}$



33. $x^2 - 14x + 49$

34. \$52.33

35. 76

36. 1.4 hours

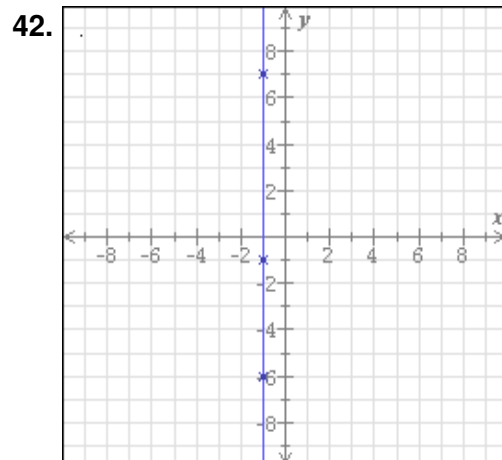
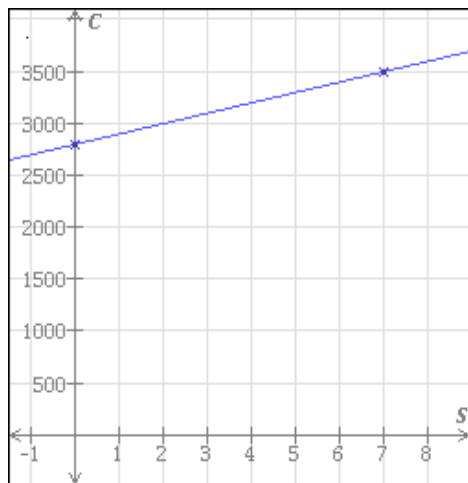
37. $4y^3w^4$

38. $RS = 37$

39. \$84.60

40. $\frac{84x^4}{u^5}$

41. $C = 2800 + 100S$



43. $\frac{49}{4}$

44. $(3y+5)(y^2-2)$

45. -9

46. $-5x^2 + 4x + 1$

47. \$350

48. 54

49. 18 minutes

50. $4uw^2(6y^6 - 7u^3w^5)$

51. $-30b^{10}c - 15b^{11}c^4 + 45b^6c^4$

52. $u = \frac{3}{40}$

53. $-\frac{6}{5}$

54. $6x^4 - 8x^3$

55. Equation of parallel line: $y = \frac{3}{4}x + 11$

Equation of perpendicular line: $y = -\frac{4}{3}x - \frac{17}{3}$

56. $y^2 - 5y - 6$

57. (a) How much lower was the 6 a.m. temperature in Fairbanks than in Houston?
82 °F lower

(b) By noon, the temperature in Milwaukee had risen by 24 °F.
What was the temperature there at noon?
9 °F

58. -31

59. $u^2 - 64$

60.

