Review Lessons 2.1-2.4 Worksheet   *Name:* _____

Identify the domain and range of the given relation. Then tell whether the relation is a function.

1.) $(0, 3), (1, 1), (2, 2), (3, 4), (4, 2)$ 2.) $(-2, -3), (-1, -1), (0, 1), (0, 3), (1, 5)$

domain: domain:
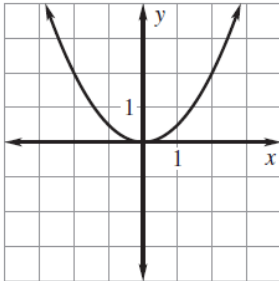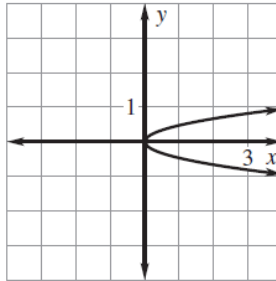
range: range:

function?:   function?:

Use the vertical line test to determine whether the relation is a function.

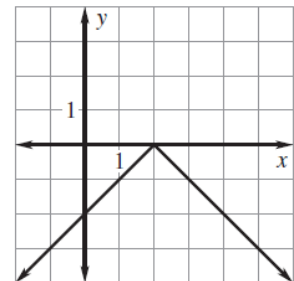3.)   4.)   5.)

function?   function?   function?

Tell whether the function is linear. Then evaluate the function for the given value of *x*.

6.) $f(x) = 3 - 3x; \ f(1)$ linear? $f(1) =$

7.) $f(x) = |x + 2|; \ f(-4)$ linear? $f(-4) =$

8.) $f(x) = \dfrac{2}{x-2}; \ f(6)$ linear? $f(6) =$

9.) $f(x) = \dfrac{2}{3}x - 5; \ f(9)$ linear? $f(9) =$

Find the slope of the line passing through the given points. Tell whether the line *rises, falls, is horizontal*, or *is vertical*.

10.) $(-3, 2), (6, -1)$ 11.) $(3, 1), (3, -2)$ 12.) $(0, -5), (-2, -9)$

$m =$ $m =$ $m =$

line: line: line:

Tell whether the lines are *parallel*, *perpendicular*, or *neither*. You must have work to back up your answer.

13.) Line 1: through $(5, 2), (1, -7)$
      Line 2: through $(-1, 3), (9, -1)$

14.) Line 1: through $(7, 3), (8, 7)$
      Line 2: through $(-5, -4), (-1, -5)$

lines are:

lines are:

15.) In 1981, the annual household cost of telephone service was $358. By the year 2001, the household cost of telephone service had increased to $914.

   a.) What is the average rate of increase in telephone service cost?

   b.) Predict what the annual household cost of telephone service would be in 2016.

Find the slope and *y*-intercept of the line. Write the *y*-intercepts as ordered pairs.

16.) $y = -13x$

17.) $2x + y - 2 = 0$

18.) $-3x + 2y - 4 = 0$

$m =$ y-int:

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Find the *x*- and *y*-intercepts of the line with the given equation. Write the intercepts as ordered pairs.

19.) $y = 4x - 1$

20.) $2x - 3y = -6$

21.) $4x - 2y = 1$

x-int: *y*-int:
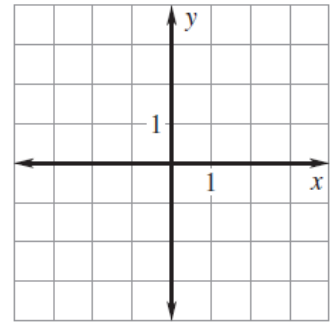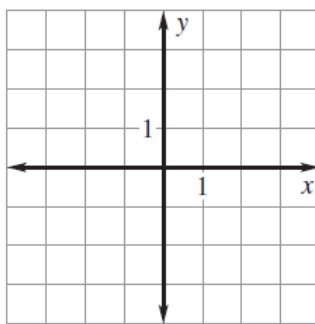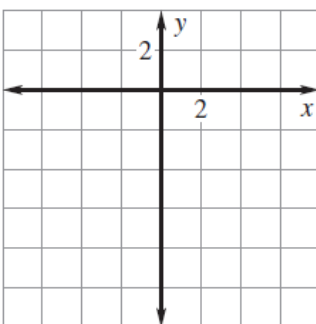
x-int: *y*-int:

x-int: *y*-int:

Graph the equation using any method. **Watch the scales on the graphs**
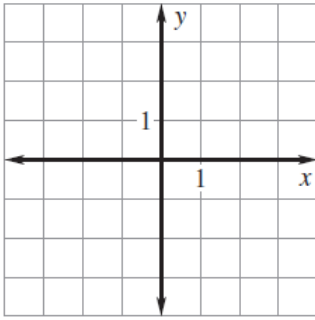
22.) $y = -2x - 6$

23.) $12x - 8y = -24$
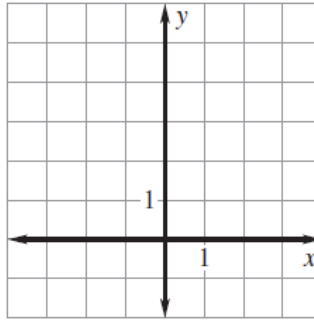
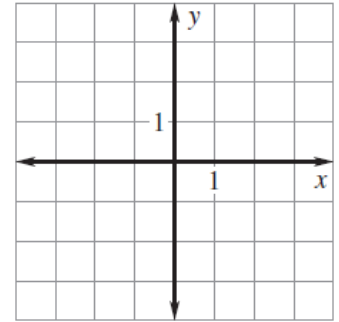24.) $2x + y = -3$

25.) $6y - 18 = 0$ ⠀⠀⠀⠀⠀⠀⠀⠀⠀ 26.) $-5x + 3y - 15 = 0$ ⠀⠀⠀⠀⠀⠀ 27.) $2x = -8$

28.) The caterer for your class picnic charges $1 for each hot dog and $2 for each hamburger. You have $48 dollars that you must spend on food.

⠀⠀a.) Write a model that shows the different combinations of hot dogs and hamburgers that you could purchase.

⠀⠀b.) If you buy 19 hamburgers, how many hot dogs could you purchase?

Write an equation, in <u>slope-intercept</u> form, that passes through the given point and satisfies the given criteria, or that passes through the given points.

29.) $\left(\frac{2}{3}, 1\right), m = -3$ ⠀⠀⠀⠀⠀⠀⠀⠀⠀⠀⠀ 30.) $(-1, -4)$; perpendicular to $y = 2x + 5$

31.) $(12, 4), m = 0$ ⠀⠀⠀⠀⠀⠀⠀⠀ 32.) $(2, 8), (5, 2)$ ⠀⠀⠀⠀⠀⠀⠀⠀ 33.) $(3, 7)$; parallel to $3x + y = 6$

Write an equation, in <u>standard</u> form, that passes through the given point and satisfies the given criteria, or that passes through the given points.

34.) $(-8, -3), (7, 0)$

35.) $\left(\frac{3}{5}, 0\right), m = -5$

36.) Netflix has changed its cost model for its movie service. There will now be a $10 annual fee plus a cost of $0.99 per movie watched.

a.) Write an equation that models the total amount of money that you will spend watching movies on Netflix this year, assuming you have a Netflix subscription.

b.) How much will it cost you to watch 42 movies?

37.) The price for U.S. postage stamps has increased over the years. Since 1975, the price has increased from $0.13 to $0.49 in 2015 at a rate that is approximately linear.

a.) Write a linear model for the price of stamps during this time period. Let p represent the price and t represent the number of years since 1975.

b.) What would you expect the price of a stamp to be in 2020?