

Name KEY

Chapter 6 Functions Quiz Review

Evaluate each expression for the given function.

$$g(x) = -3x + 1$$

$$f(x) = x^2 + 7$$

$$h(x) = \frac{12}{x}$$

$$j(x) = 2x + 9$$

a. $g(10) = -29$

b. $f(3) = 16$

c. $h(-2) = -6$

d. $j(7) = 23$

e. $h(a) = \frac{12}{a}$

* Challenge: What was the input given the output?

h. Find x if $g(x) = 16$

$$x = -5$$

$$\begin{array}{r} 16 = -3x + 1 \\ -1 \quad -1 \\ \hline 15 = -3x \end{array}$$

j. Find x if $f(x) = 23$

$$x = 4$$

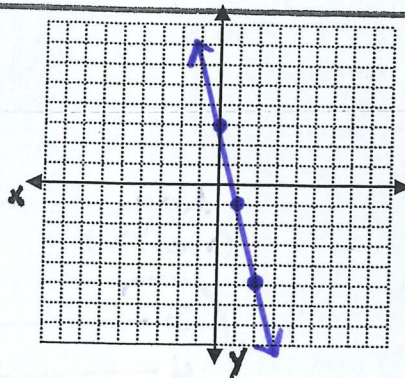
$$\begin{array}{r} 23 = x^2 + 7 \\ -7 \quad -7 \\ \hline 16 = x^2 \end{array}$$

Given $f(x) = 3 - 4x$. Fill in the table and then sketch a graph.

$$f(x) = -4x + 3$$

$$\begin{array}{r} -5 = -4x + 3 \\ -3 \quad -3 \\ \hline -8 = -4x \end{array}$$

x	$f(x)$
-6	27
-3	15
0	3
1	-1
2	-5



$$f(-6) = -4(-6) + 3 = 27$$

APPLICATION

Swine flu is attacking Porkopolis. The function below determines how many people have swine where $t =$ time in days and $S =$ the number of people in thousands.

$$S(t) = 9t - 4$$

a. Find $S(4)$.

$$S(4) = 32$$

b. What does $S(4)$ mean?

32,000 people had swine flu after 4 days.

c. Find t when $S(t) = 23$.

$$\begin{array}{r} 23 = 9t - 4 \\ +4 \quad \quad +4 \\ \hline 27 = 9t \end{array} \quad t = 3 \text{ days}$$

d. What does $S(t) = 23$ mean?

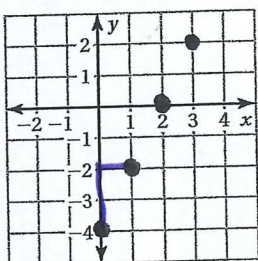
23,000 people have swine flu after 3 days

e. Graph the function.

(Next Page)

Use the graph or table to write a linear function that relates y to x . (Section 6.3)

9.



$$y = 2x - 4$$

10.

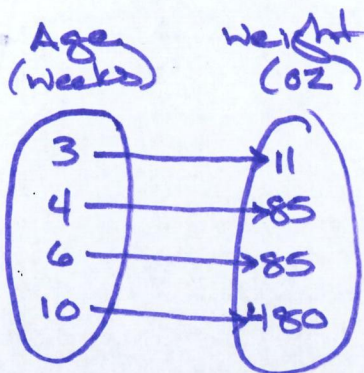
x	y
-3	-3
0	-1
3	1
6	3

$$\begin{array}{l} \Delta x \\ +3 \end{array} \quad \begin{array}{l} \Delta y \\ +2 \end{array}$$

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

11. **PUPPIES** The table shows the ages of four puppies and their weights. Use the table to draw a mapping diagram. (Section 6.1)

Age (weeks)	Weight (oz)
3	11
4	85
6	85
10	480

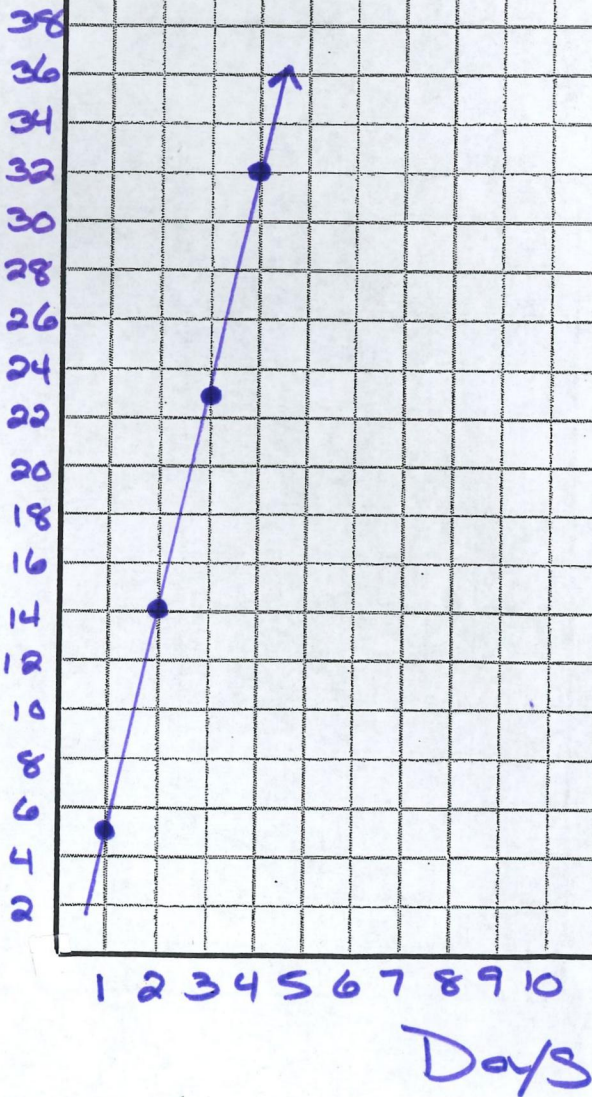


Swine Flu

$$S(t) = 9t - 4$$

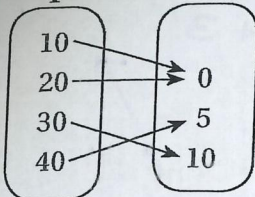
t	$S(t)$
0	-4
1	5
2	14
3	23
4	32
5	41

← doesn't make sense



List the ordered pairs shown in the mapping diagram. Then determine whether the relation is a function. (Section 6.1)

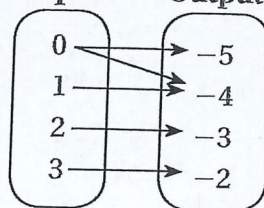
1. Input Output



Yes each Input has exactly one output

$(10, 0)$ $(20, 0)$ $(30, 5)$ $(40, 10)$

2. Input Output



No. The input zero has two outputs.

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

Graph the function. (Section 6.2)

6. $y = x - 10$

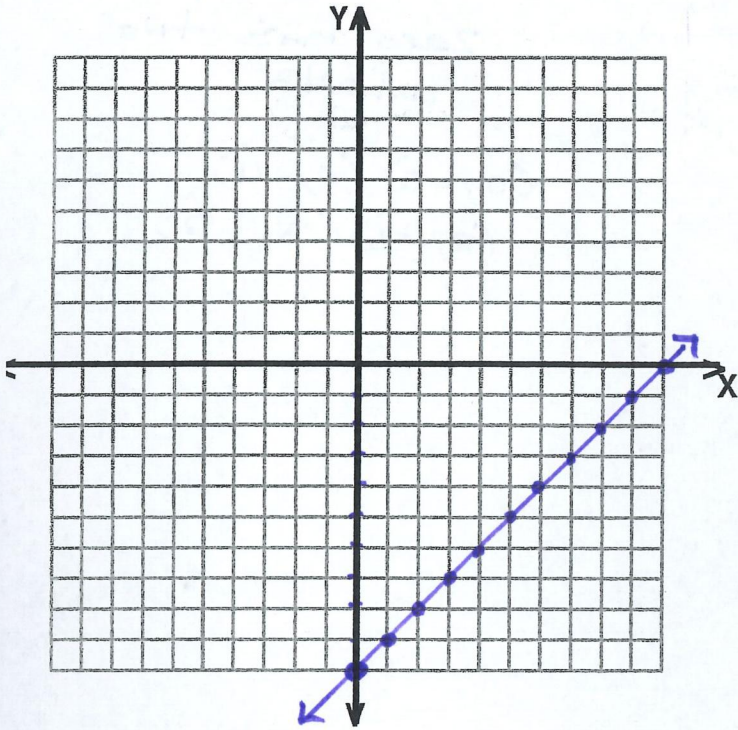
7. $y = 2x + 3$

8. $y = \frac{x}{2}$

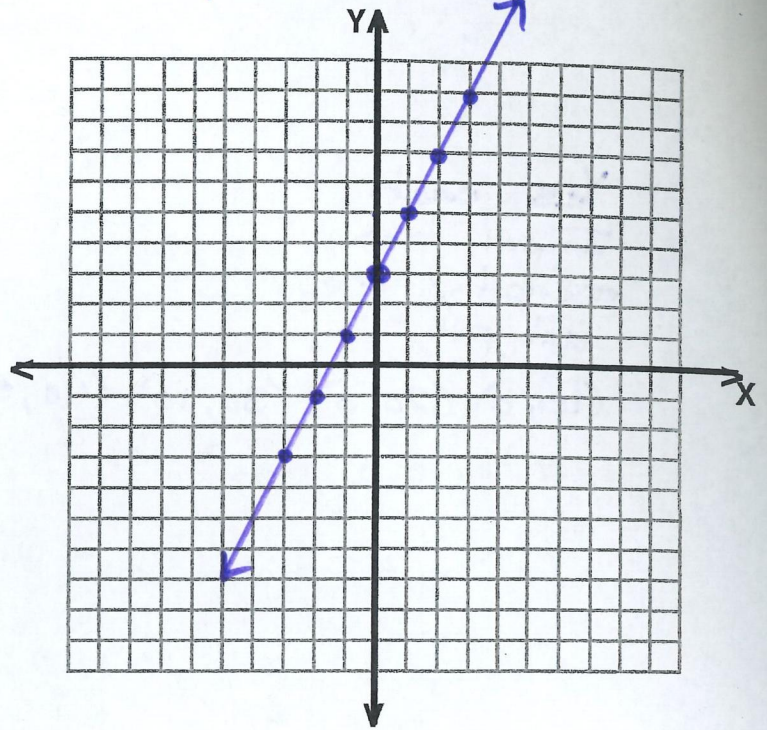
Graphs on next page

$$m=1$$

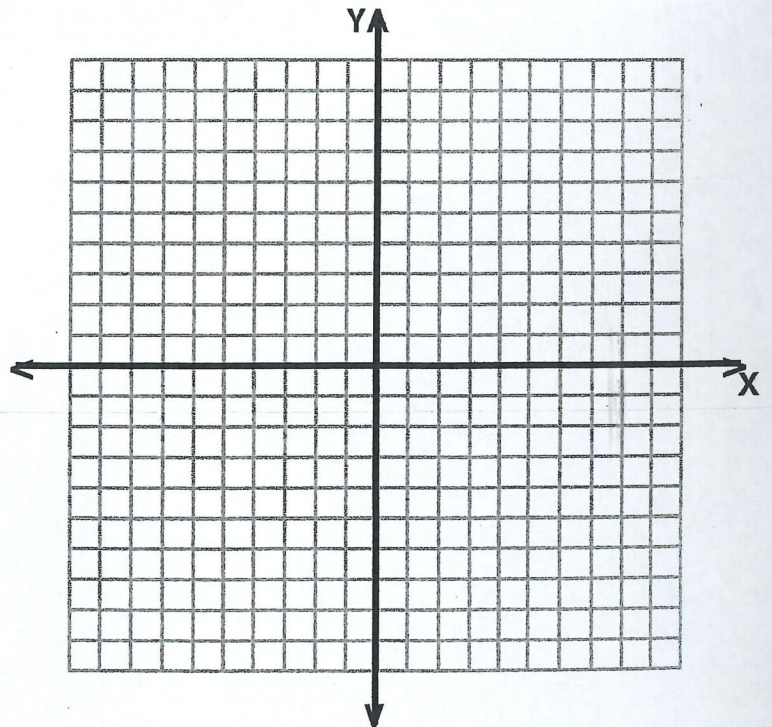
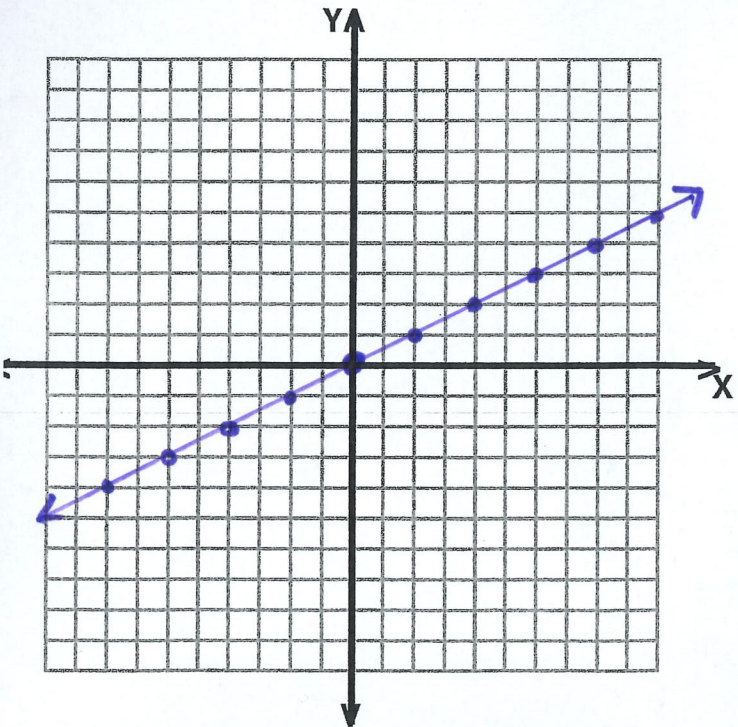
$$y = x - 10$$



$$y = 2x + 3$$



$$y = \frac{x}{2} \text{ or } y = \frac{1}{2}x + 0$$



13. **ADVERTISING** The table shows the revenue R (in millions of dollars) of a company when it spends A (in millions of dollars) on advertising. (Section 6.3)

Advertising, A	Revenue, R
0	2
2	6
4	10
6	14
8	18

- Write and graph a linear function that relates the revenue to the advertising cost.
- What is the revenue of the company when it spends \$15 million on advertising?

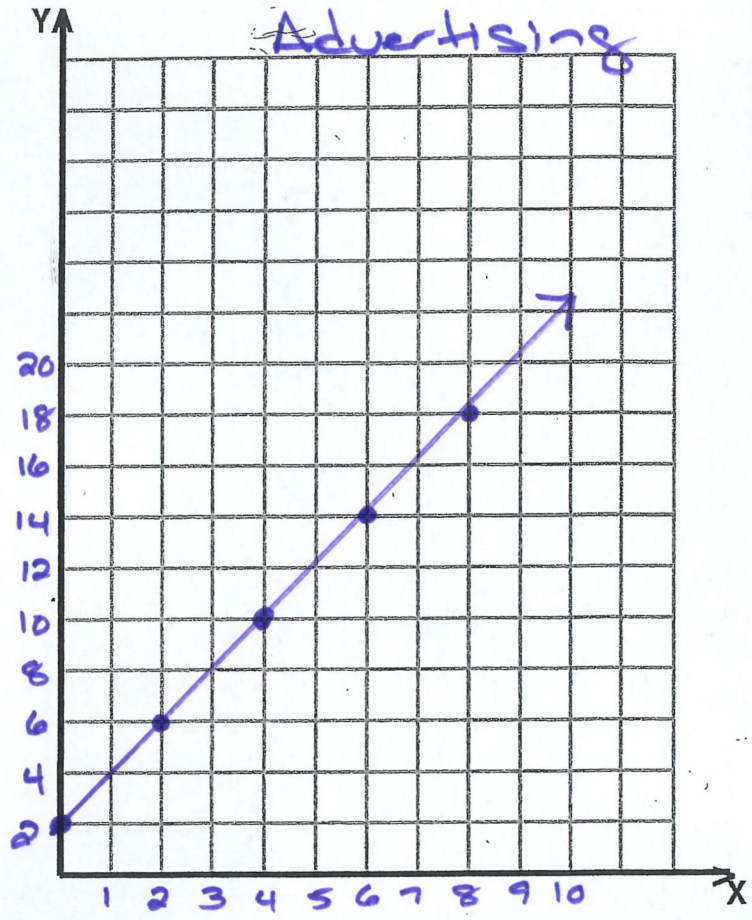
$\Delta x = +2$ $\Delta y = +4$

$R = 2x + 2$

$R = 2(15) + 2$

The company earns 32 million dollars when it spends 15 million on Advertising.

Revenue (millions of dollars)



12. **MUSIC** An online music store sells songs for \$0.90 each. (Section 6.2)

- Write a function that you can use to find the cost C of buying s songs.
- What is the cost of buying 5 songs?

I used "x" (s looks like a 5)

$C = 0.9x$

$C = 0.9(5)$

It cost \$4.50 to buy 5 songs