Section 6 - Slope-Intercept Form

Write the equation that describes each line in slope-intercept form.

m *b*

1. slope = 4; *y*-intercept = –3

$$\boxed{y = 4x - 3}$$

m *b*

2. slope = –2; *y*-intercept = 0

$$y = -2x + 0 = \boxed{y = -2x}$$

m *b*

3. slope = $-\dfrac{1}{3}$; *y*-intercept = 6

$$\boxed{y = -\dfrac{1}{3}x + b}$$

m *x* *y*

4. slope = $\dfrac{2}{5}$, (10, 3) is on the line.

$$3 = \dfrac{2}{5}\left(\dfrac{10}{1}\right) + B$$

$$3 = \dfrac{20}{5} + B$$

$$3 = 4 + B$$
$$-4 \quad -4$$
$$-1 = B$$

Find the *y*-intercept using *y* = *mx* + *b*

Write the equation: $y = \dfrac{2}{5}x - 1$

Write each equation in slope-intercept form. Then graph the line described by the equation.
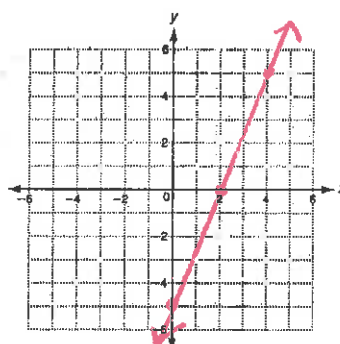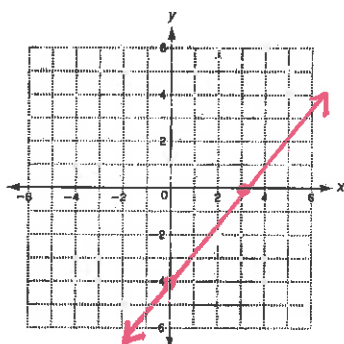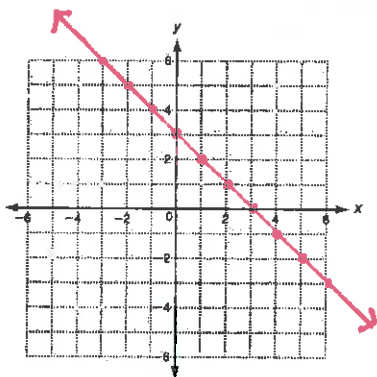
5. *y* + *x* = 3
$$-x \quad -x$$
$$\boxed{y = -x + 3}$$

6. $y + 4 = \dfrac{4}{3}x$
$$-4 \quad -4$$
$$\boxed{y = \dfrac{4}{3}x - 4}$$

7. 5*x* – 2*y* = 10
$$-5x \quad -5x$$
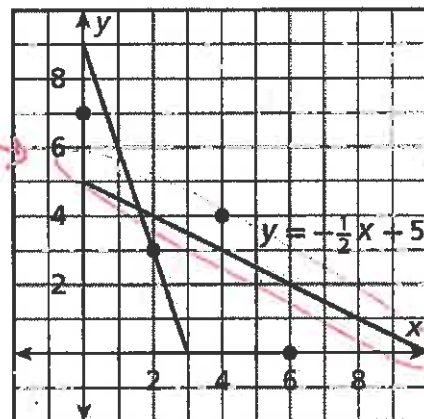$$\dfrac{-2y}{-2} = \dfrac{-5x}{-2} + \dfrac{10}{-2}$$
$$y = \dfrac{5}{2}x - 5$$

Section 8 - Line of Best Fit

1. The data in the table are graphed at right along with two lines of fit.

x	0	2	4	6
y	7	3	4	0

a. Which line is a better fit for the data?_

$y = -\frac{1}{2}x - 5$

2. Use the data in the table to find a line of best fit.

STAT
L1
L2
Edit:

x	5	6	6.5	7.5	9
y	0	−1	3	−2	4

a. Find an equation for a line of best fit.

$a = .784946236b$

$b = -4.537634409$

$y = .78x - 4.54$

STAT
CALC
#4

3. Use the data in the table to find a line of best fit.

x	10	8	6	4	2
y	1	1.1	1.2	1.3	1.5

a. Find an equation for a line of best fit. _____ $y = -.06x + 1.58$

$a = -.06$

$b = 1.58$

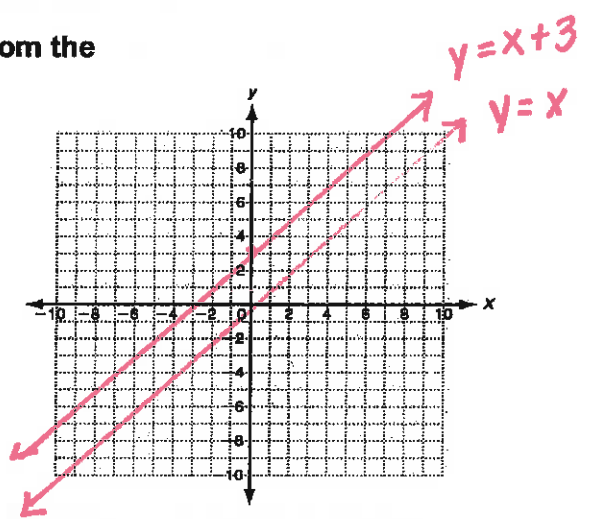## Section 10 - Transforming Linear Functions

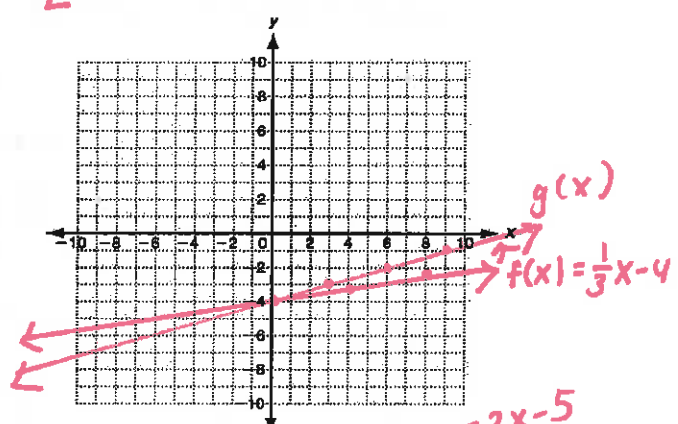**Graph f(x) and g(x). Then describe the transformation from the graph of f(x) to the graph of g(x).**

1. $f(x) = x; g(x) = x + 3$

$y = x + 3$

$y = x$

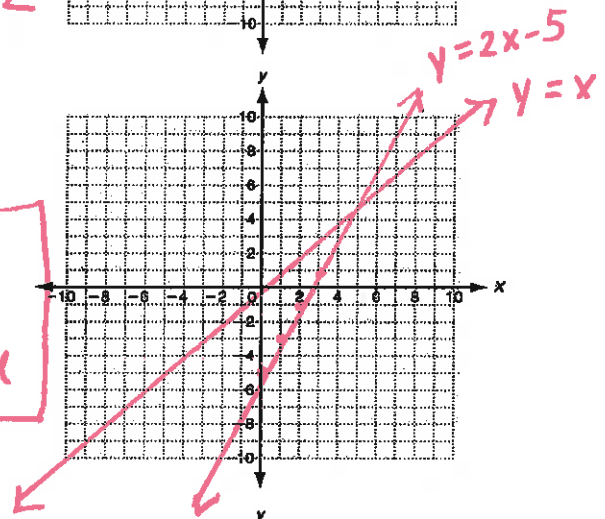*Translation: 3 up*

2. $f(x) = \dfrac{1}{3}x - 4; g(x) = \dfrac{1}{4}x - 4$

$g(x)$

$f(x) = \dfrac{1}{3}x - 4$

Rotation: counter-clockwise

3. $f(x) = x; g(x) = 2x - 5$

$y = 2x - 5$
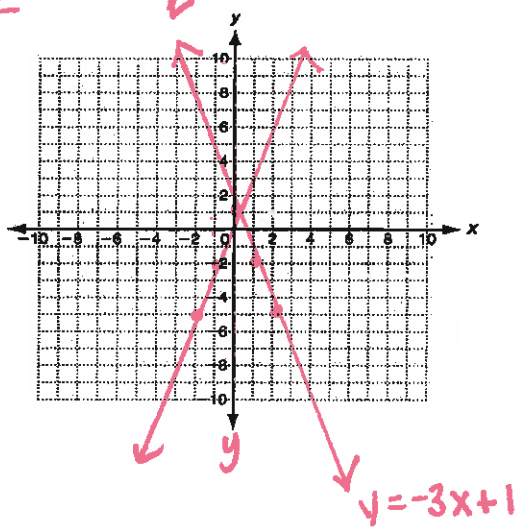
$y = x$

Translation: 5 down

Rotation: counter-clockwise

4. Graph $f(x) = -3x + 1$. Then reflect the graph of $f(x)$ across the y-axis. Write a function $g(x)$ to describe the new graph.

$y = 3x + 1$

$y = -3x + 1$

Section 3.5 - Writing Functions

Determine a relationship between the *x*- and *y*-values. Write an equation.

1.

x	–4	–3	–2	–1
y	–1	0	1	2

$$y = x + 3$$

2. {(2, 3), (3, 5), (4, 7), (5, 9)}

$$y = 2x - 1$$

Evaluate each function for the given input values.

7. For $f(x) = 5x + 1$, find $f(x)$ when $x = 2$ and when $x = 3$.

$$f(2) = 5(2) + 1 = 11 + 1 = 12$$
$$f(3) = 5(3) + 1 = 15 + 1 = 16$$

$$f(2) = 12$$
$$f(3) = 16$$

8. For $g(x) = -4x$, find $g(x)$ when $x = -6$ and when $x = 2$.

$$g(-6) = -4(-6) = 24$$
$$g(2) = -4(2) = -8$$

$$g(-6) = 24$$
$$g(2) = -8$$

9. For $h(x) = x - 3$, find $h(x)$ when $x = 3$ and when $x = 1$.

$$h(3) = 3 - 3 = 0$$
$$h(1) = 1 - 3 = -2$$

$$h(3) = 0$$
$$h(1) = -2$$

Complete the following.

10. An aerobics class is being offered once a week for 6 weeks. The registration fee is $15 and the cost for each class attended is $10. Write a function rule to describe the total cost of the class. Find a reasonable domain and range for the function.

$$D = \{0, 1, 2, 3, 4, 5, 6\}$$

fee

$$y = 15 + 10x$$

classes

$$R = \{15, 25, 35, 45, 55, 65, 75\}$$ total cost