Pg 30-31 #3-20 (skip #17)

3. a. $A = \frac{1}{2}bh$

   b. $b = \frac{2A}{h}$

   c. $b = 12 \text{ mm}$

4. a. $V = Bh$

   b. $B = \frac{V}{h}$

   c. $B = 6 \text{ in.}^2$

5. $y = 4 - \frac{1}{3}x$

6. $y = 35 - 15x$

7. $y = \frac{2}{3} - \frac{4}{9}x$

8. $y = \frac{7}{2}x - \frac{\pi}{2}$

9. $y = 3x - 1.5$

10. $y = \frac{4}{3} + \frac{1}{4}x$

11. The y should have a negative sign in front of it.

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

12. a. $C = K - 273.15$

    b. $26.85°\text{C}$

13. **a.** $t = \dfrac{I}{Pr}$

b. $t = 3$ yr

14. $t = \dfrac{d}{r}$

15. $m = \dfrac{e}{c^2}$

16. $C = R - P$

17. $\ell = \dfrac{A - \frac{1}{2}\pi w^2}{2w}$

18. $V = \dfrac{Bh}{3}$

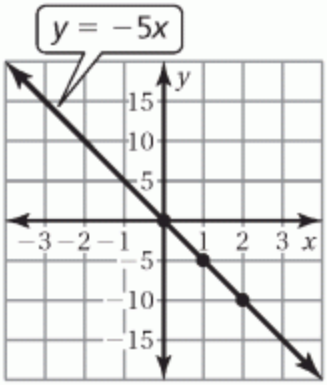
19. $w = 6g - 40$

20. The rewritten formula is a general solution that can be reused.

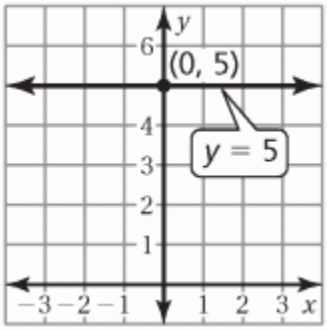
Pg 146-147 #2, 5 – 15 odd, 19, 21, 24

2. $y = x^2 + 6$ does not belong because it is not a linear equation.

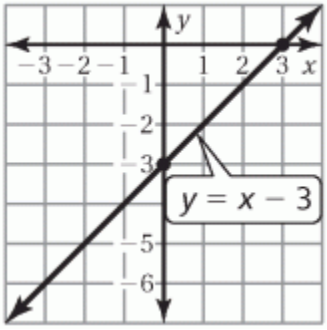
5.



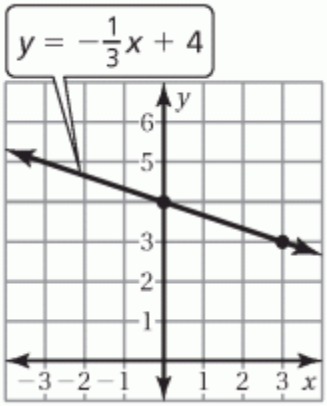
7.



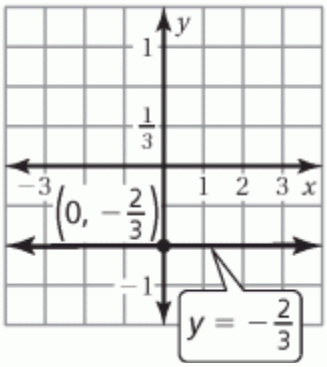
9.



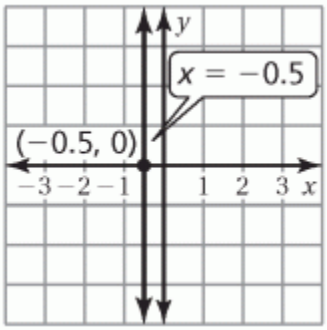
11.



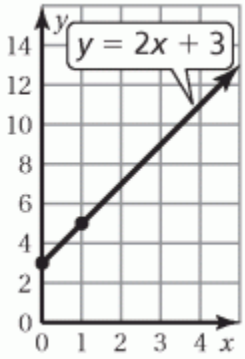
13.



15.



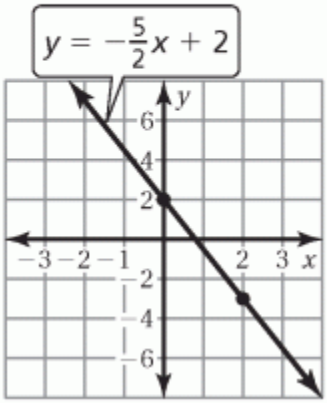
19. **a.**



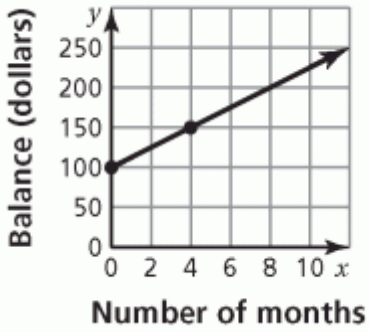
b. about \$5

c. \$5.25

21. $y = -\frac{5}{2}x + 2$



24. a.


y
250
200
150
100
50
0
0 2 4 6 8 10 x
Balance (dollars)
Number of months

b. 6 mo

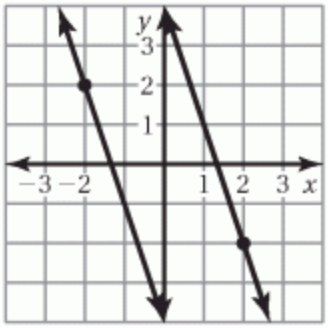
Pg 153-154 #1 – 33 odd

1. **a.** B and C

   b. A

   c. no; None of the lines are vertical.

3. The line is horizontal.

5. 

   The lines are parallel.

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

9. $-\frac{3}{5}$

11. 0

13. 0

15. undefined

17. $-\frac{11}{6}$

19. The denominator should be $2 - 4$.
    $m = -1$

21. 4

23. $-\frac{3}{4}$

25. $\frac{1}{3}$

27. $k = 11$

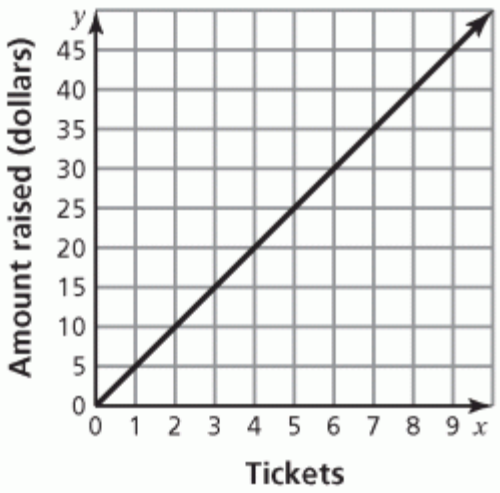
29. $k = -5$

31. **a.** $\frac{3}{40}$

b. The cost increases by \$3 for every 40 miles you drive, or the cost increases by \$0.075 for every mile you drive.

33. yes; The slopes are the same between the points.

Pg 162-163 #1 – 11

1. (0, 0)
2. no; *Sample answer:* The graph of the equation does not pass through the origin.
3. no; *Sample answer:* The graph of the equation does not pass through the origin.
4. yes; $y = 4x$; *Sample answer:* The graph is a line through the origin.
5. yes; $y = \frac{1}{3}x$; *Sample answer:* The rate of change in the table is constant.
6. no; *Sample answer:* The rate of change in the table is not constant.
7. 

   Each ticket costs $5.

8. **a.** $y = 9x$

   b. It costs $9 per hour to rent a kayak.

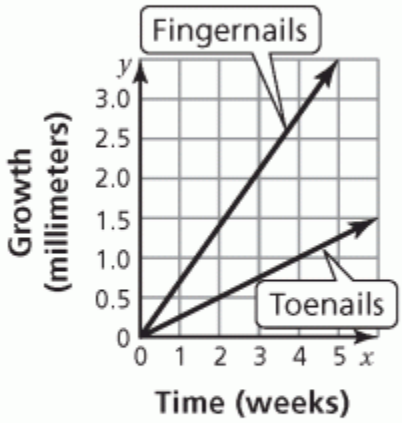
   c. $45

9. a. the car; *Sample answer:* The equation for the car is $y = 25x$. Because 25 is greater than 18, the car gets better gas mileage.

b. 56 miles

10. a. fingernails; Fingernails grow about 0.7 millimeter per week and toenails grow about 0.25 millimeter per week.

b.



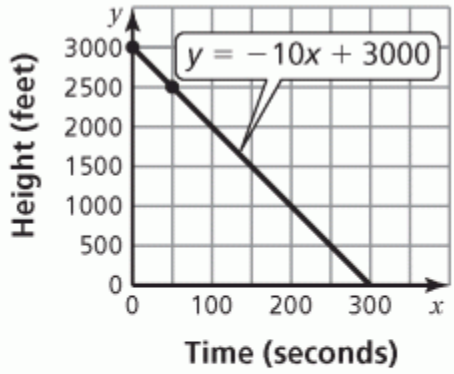
The graph that represents fingernails is steeper than the graph that represents toenails. So, fingernails grow faster than toenails.

11. See *Taking Math Deeper.*

Pg 170-171 #1, 2, 4 – 6, 7 – 15 odd, 16, 17 – 25 odd

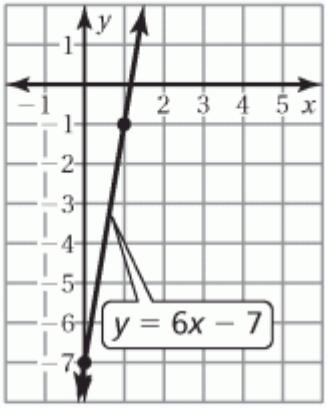
1. Find the x-coordinate of the point where the graph crosses the x-axis.
2. yes; The slope is 3 and the y-intercept is 0.
4. B; slope: 2; y-intercept: 1
5. A; slope: $\frac{1}{3}$; y-intercept: -2
6. C; slope: $-\frac{2}{3}$; y-intercept: 1
7. slope: 4; y-intercept: -5
9. slope: $-\frac{4}{5}$; y-intercept: -2
11. slope: $\frac{4}{3}$; y-intercept: -1
13. slope: -2; y-intercept: 3.5
15. slope: 1.5; y-intercept: 11
16. The y-intercept should be -3.
    $y = 4x - 3$
    The slope is 4 and the y-intercept is -3.

17. a.



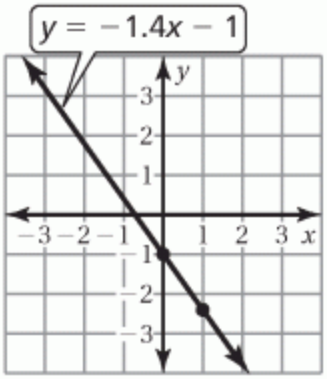
b. The x-intercept of 300 means the skydiver lands on the ground after 300 seconds. The slope of -10 means that the skydiver falls to the ground at a rate of 10 feet per second.

19.

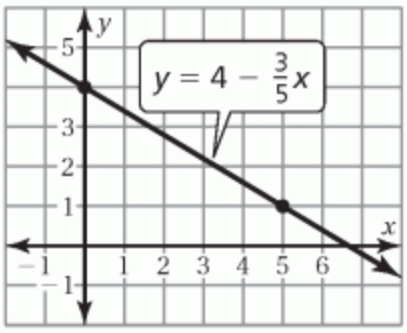


x-intercept: $\frac{7}{6}$

21.



x-intercept: $-\frac{5}{7}$

23. 

x-intercept: $\frac{20}{3}$

25. **a.** $y = 2x + 4$ and $y = 2x - 3$ are parallel because the slope of each line is 2; $y = -3x - 2$ and $y = -3x + 5$ are parallel because the slope of each line is -3.

b. $y = 2x + 4$ and $y = -\frac{1}{2}x + 2$ are perpendicular because the product of their slopes is -1;

$y = 2x - 3$ and $y = -\frac{1}{2}x + 2$ are perpendicular because the product of their slopes is -1;

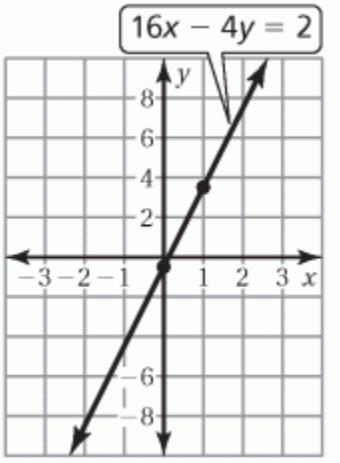
$y = -\frac{1}{3}x - 1$ and $y = 3x + 3$ are perpendicular because the product of their slopes is -1.

Pg 176-177 #5, 7, 9, 11-13, 14, 15, 17

5. $y = -2x + 17$

7. $y = \frac{1}{2}x + 10$

9.



11. B

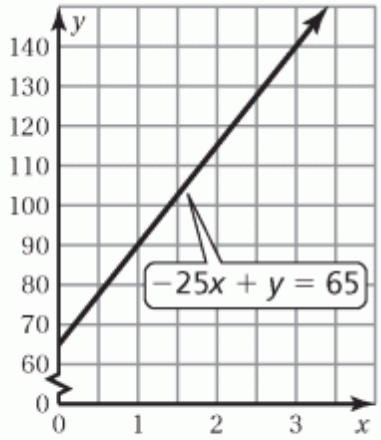
12. A

13. C

14. They should have let $y = 0$, not $x = 0$.

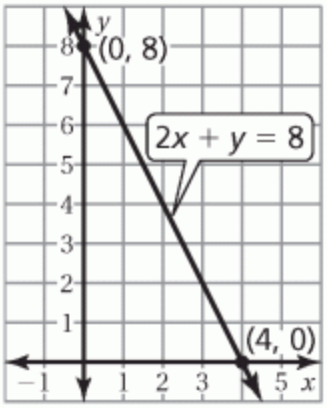
$$\begin{aligned} -2x + 3y &= 12 \\ -2x + 3(0) &= 12 \\ -2x &= 12 \\ x &= -6 \end{aligned}$$

15. a.



b. $390

17.



Pg 182-183 #5 – 9 odd, 11, 12 – 16, 18

5. $y = x + 4$

7. $y = \frac{1}{4}x + 1$

9. $y = \frac{1}{3}x - 3$

11. The x-intercept was used instead of the y-intercept.

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

12. $y = \frac{2}{3}x + \frac{3}{2}$

13. $y = 5$

14. $y = 0$

15. $y = -2$

16. $y = 0.7x + 10$

18. $y = -140x + 500$

Pg 188-189 #1-17 (odd) ,19, 20, 24, 27

1. $m = -2; (-1, 3)$

3. $y - 0 = \frac{1}{2}(x + 2)$

5. $y + 1 = -3(x - 3)$

7. $y - 8 = \frac{3}{4}(x - 4)$

9. $y + 5 = -\frac{1}{7}(x - 7)$

11. $y + 4 = -2(x + 1)$

13. $y = 2x$

15. $y = \frac{1}{4}x$

17. $y = x + 1$

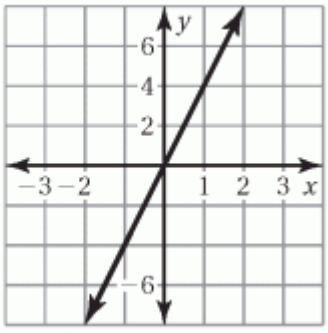
19. **a.** $V = -4000x + 30{,}000$

b. \$30,000

20. **a.** $y = 4x - 30$

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

24.



27. D

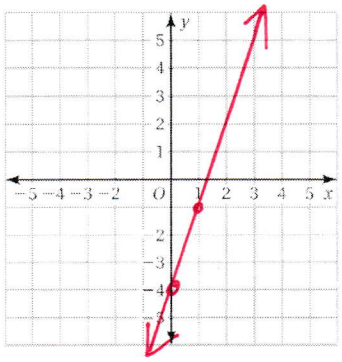
Name: Answers Period: _____

Chapter 4 Review

Graph both linear equations on the coordinate plane on the right. Make sure you use an input/output table with at least 3 ordered pairs for each.

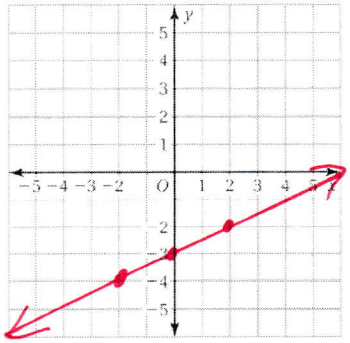
1) $y = 3x - 4$

x	$y = 3x - 4$	y
-1	$3(-1) - 4$	-7
0	$3(0) - 4$	-4
1	$3(1) - 4$	-1



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

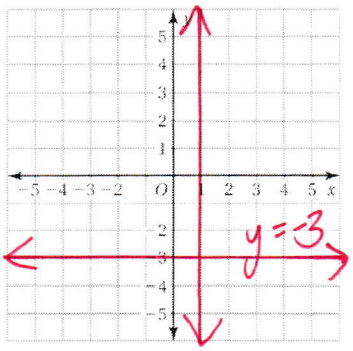
x	$y = \frac{1}{2}x - 3$	y
-2	$\frac{1}{2}(-2) - 3$	-4
0	$\frac{1}{2}(0) - 3$	-3
2	$\frac{1}{2}(2) - 3$	-2



Graph both of the equations on the coordinate plane on the right. You may make an input/output table if you wish.

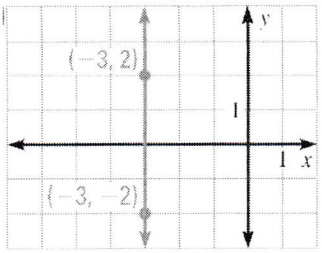
3) $y = -3$

4) $x = 1$



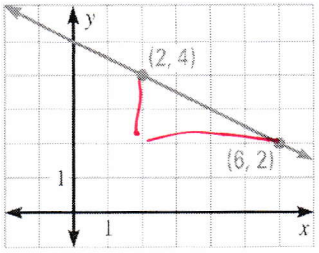
5) The slope of any line can be written as a ratio that represents its rise over its run.

Tell whether the slope of the line is positive, negative, zero, or undefined. Then find the slope if it exists.

6) 

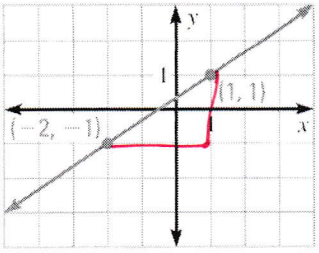
Kind of slope: Undefined

m = Undefined

7) 

Kind of slope: Negative

$m = \frac{-2}{4} = -\frac{1}{2}$

8) 

Kind of slope: Positive

$m = \frac{2}{3}$

9) The slopes of parallel lines are the same.

10) Find the slope of the line that passes through the points. Write your answer in simplest form.

a) (-1, 11) and (2, 10) m = $-\frac{1}{3}$

$m = \frac{10-11}{2--1} = \frac{-1}{3}$

b) (-2, 0) and (4, 9) m = $\frac{3}{2}$

$m = \frac{9-0}{4--2} = \frac{9}{6} = \frac{3}{2}$

c) (-5, 2) and (-5, 7) m = Undefined

$m = \frac{7-2}{-5--5} = \frac{5}{0}$

d) (4, 6) and (-2, 6) m = 0

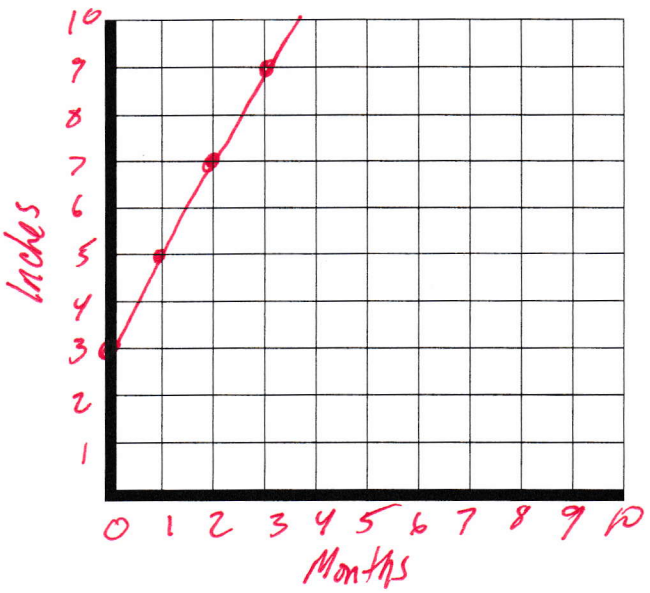
$m = \frac{6-6}{-2-4} = \frac{0}{-6}$

11) A plant is 3 inches tall when you purchase it and grows 2 inches per month. Write an equation that represents the height y (in inches) of a plant that you purchased x months ago.

a) Equation:

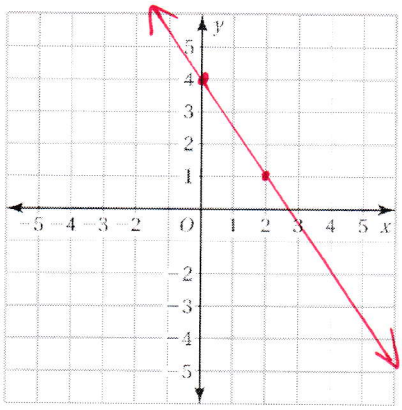
$y = 2x + 3$

b) Graph this equation and make sure to:
- Label you axis.
- Use at least 4 ordered pairs.



Graph each equation using the slope and the y-intercept only.

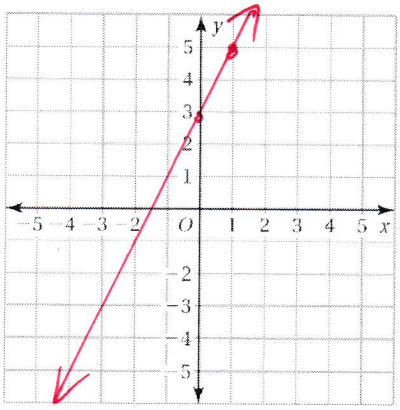
12) Graph $y = -\frac{3}{2}x + 4$



13) Change to slope intercept form and graph
$6x - 3y = -9$

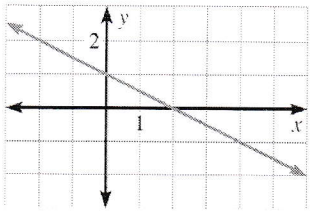
$-3y = -6x - 9$

$y = 2x + 3$



Identify the x-intercept and the y-intercept of the graph.

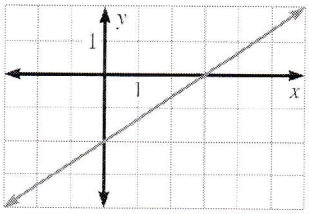
14)



x-intercept : $(2,0)$

y-intercept : $(0,1)$

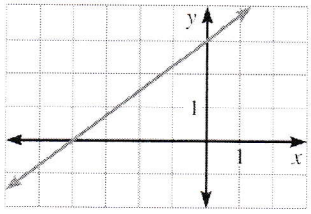
15)



x-intercept : $(3,0)$

y-intercept : $(0,-2)$

16)



x-intercept : $(-4,0)$

y-intercept : $(0,3)$

Find the x-intercept and the y-intercept of each equation, and then graph it.

17) $-4x + 5y = 20$

$(x,0)$

$\frac{-4x}{-4} = \frac{20}{-4}$

$x = -5$

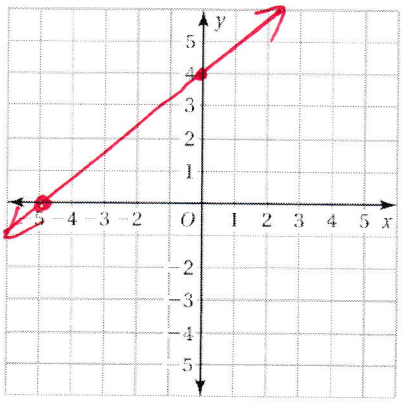
x-intercept : $(-5,0)$

$(0,y)$

$\frac{5y}{5} = \frac{20}{5}$

$y = 4$

y-intercept : $(0,4)$



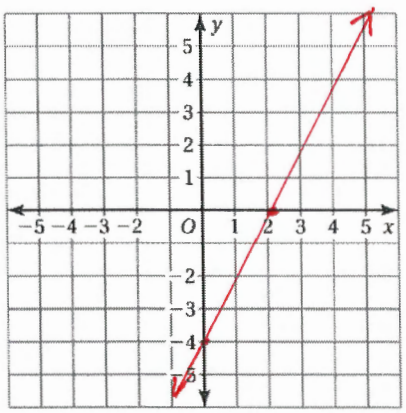
18) $6x-3y=12$

$(x,0)$ $\quad\quad$ $(0,y)$

$\frac{6x}{6}=\frac{12}{6}$ $\quad\quad$ $\frac{-3y}{-3}=\frac{12}{-3}$

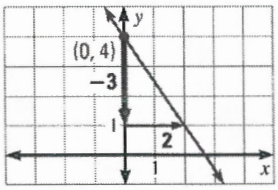
$x=2$ $\quad\quad$ $y=-4$

x-intercept : $(2,0)$ $\quad\quad$ y-intercept : $(0,-4)$



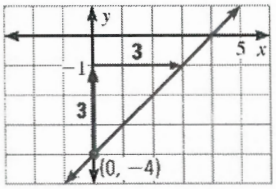
Write an equation of the line shown in slope-intercept form.

19)



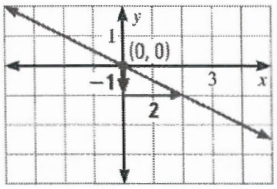
$y=\frac{-3}{2}x+4$

20)



$y=1x-4$

21)



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

Write an equation of the line that passes through the following points in **slope-intercept** form.

22) $(-4,-1),(0,5)$

↖ y-int

$m=\frac{5-1}{0--4}=\frac{6}{4}=\frac{3}{2}$

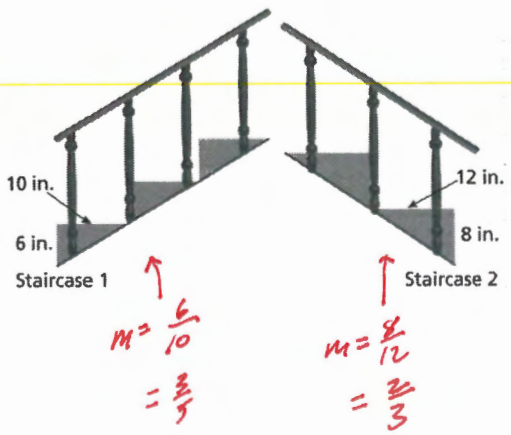
$y=\frac{3}{2}x+5$

23) $(-2,1),(0,-4)$

$m=\frac{-4-1}{0--2}=\frac{-5}{2}$

$y=\frac{-5}{2}x-4$

24) Which set of stairs is more difficult to climb? Explain.

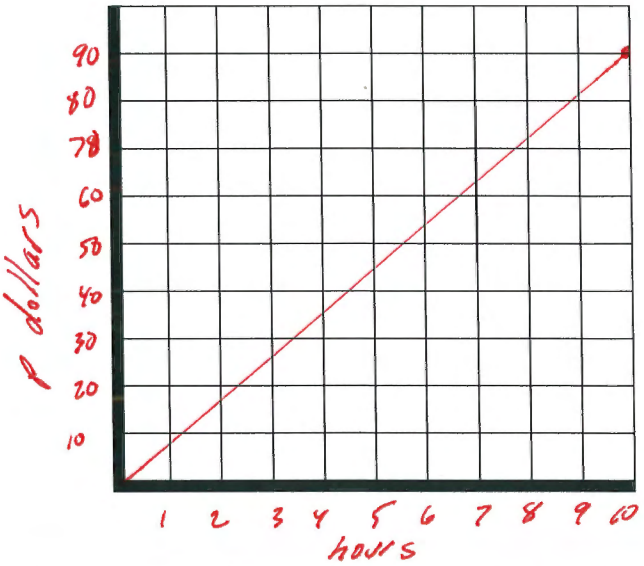


$m=\frac{6}{10}=\frac{3}{5}$ $\quad\quad$ $m=\frac{8}{12}=\frac{2}{3}$

Staircase has a steeper slope because its slope is bigger.

25) The amount p (in dollars) that you earn by working h hours is represented by the equation $p = 9h$. Graph the equation and interpret the slope.

The slope is how much money you make in one hour.



26) The cost c (in dollars) to rent a bicycle is proportional to the number h of hours that you rent the bicycle. It costs \$20 to rent the bicycle for 4 hours.

a) Write an equation that represents the situation.

$c = 5h$

b) Interpret the slope.

It is the cost to rent the bicycle for one hour.

c) How much does it cost to rent the bicycle for 6 hours?

\$30

27) You organize a garage sale. You have \$30 at the beginning of the sale. You earn an average of \$20 per hour. Write an equation that represents the amount of money y you have after x hours.

$y = 20x + 30$