Review: Graphing Linear Equations & Inequalities

Find the slope of the line passing through the points:

1) $(-3,-9)$ & $(-6,15)$ 2) $(4,7)$ & $(-3,2)$ 3) $(7,1)$ & $(0,1)$

Write each equation in Slope-Intercept Form. State slope & y-intercept.

4) $x+y=6$ 5) $4x-y=3$ 6) $x+4y=-8$

7) $3x-\frac{1}{2}y=1$ 8) $y+4=0$

Find the x & y-intercepts of each line

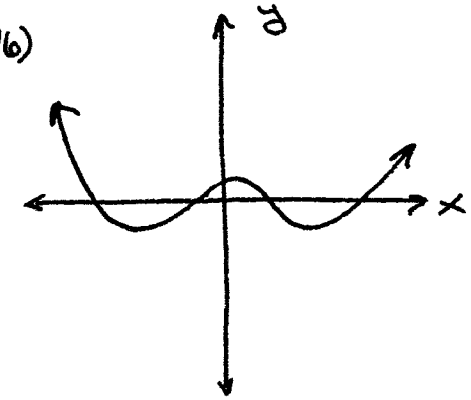
9) $2x+5y=20$ 10) $2x-6y=10$ 11) $\frac{1}{5}x-\frac{2}{3}y=4$

Evaluate the function $f(x)=5+3x^3$ at each value.

12) $f(1)$ 13) $f(0)$ 14) $f(-1)$ 15) $f(2)$

Which of the following graphs represent a function?

16)



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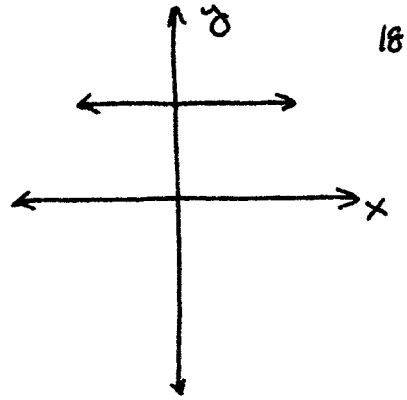

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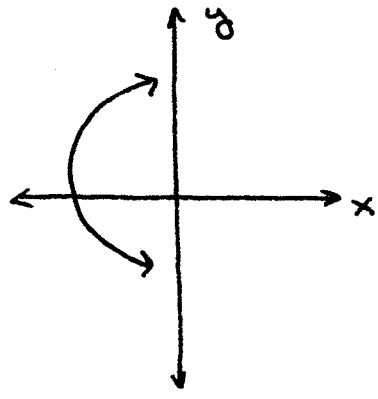


Which of the following sets of lines are parallel?

19) $2x+5y=6$
$2x-5y=1$

20) $3x+4y=9$
$6x+8y=2$

Graph each equation using the indicated method.

21) $5x - 6y = 12$ (Slope-Intercept Form)

22) $y = 2x - 1$ (Table of Values)

23) $\frac{1}{2}x - \frac{1}{3}y = 2$ (X & Y-Intercepts)

24) $x + 2y - 1 = 0$ (Any Method)

25) $y = 3$ (Any Method)

Determine whether each table represents a function or relation. Explain.

26)

input	output
-2	-6
0	1
1	3
3	4

27)

input	output
6	4
-1	1
0	1
6	3
5	1

Graph each linear inequality

28) $y \geq -1$

29) $y < -\frac{3}{2}x + 4$

30) $-3x + 6y > 18$

31) On school nights you are allowed a maximum of 40 minutes total to "surf the web" or to be on "Facebook." What are the different amounts of time you can spend surfing or on Facebook? Display your answer with a graph. (Let x = # of minutes surfing, let y = # of minutes on Facebook)

Answers:

1) $m = -8$

2) $m = 5/7$

3) $m = 0$

4) $y = -x + 6$
$m = -1$
$b = 6$

5) $y = 4x - 3$
$m = 4$
$(0, -3)$

6) $y = -\frac{1}{4}x - 2$
$m = -1/4$
$b = -2$

7) $y = 6x - 2$
$m = 6$
$(0, -2)$

8) $y = -4$
$m = 0$
$(0, -4)$

9) $(10, 0)$
$(0, 4)$

10) $(5, 0)$
$(0, -5/3)$

11) $(20, 0)$
$(0, -6)$

12) $f(1) = 8$

13) $f(0) = 5$

14) $f(-1) = 2$

15) $f(2) = 29$

16) function

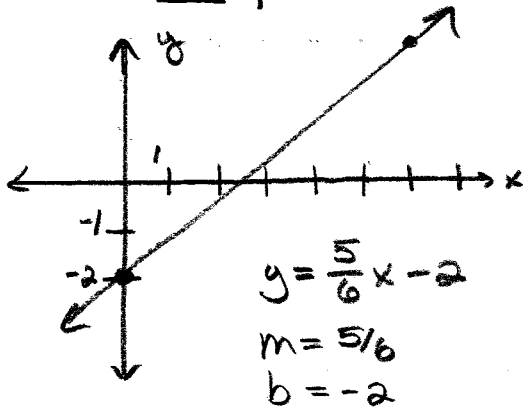
17) function

18) relation

19) lines <u>not</u> parallel ... slopes are different ($-2/5$ & $2/5$)

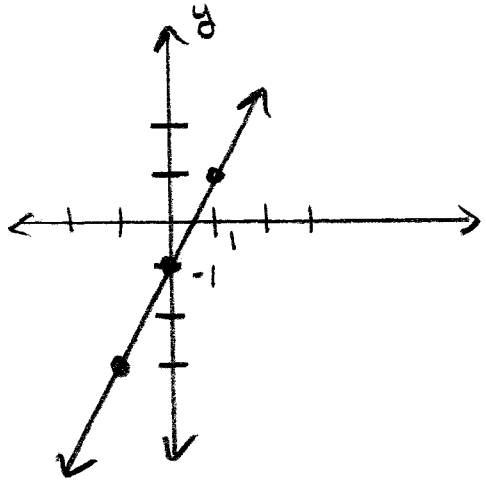
20) lines <u>are</u> parallel ... slopes are same ($-3/4$)

21)



$y = \frac{5}{6}x - 2$
$m = 5/6$
$b = -2$

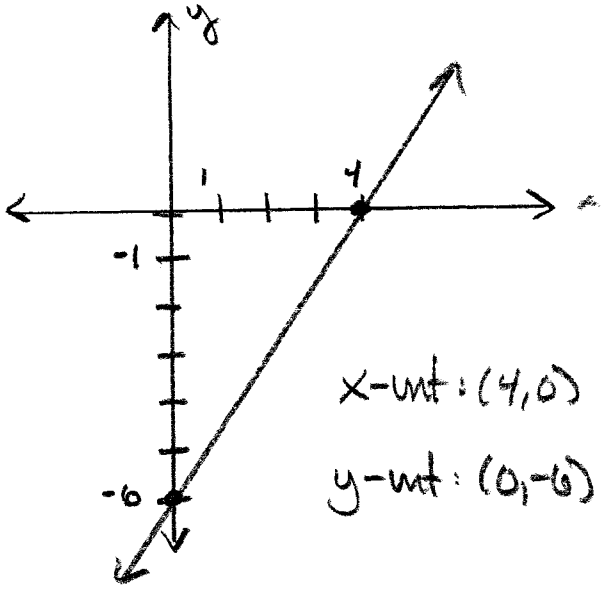
22)



x	y
-1	-3
0	-1
1	1

Answers:

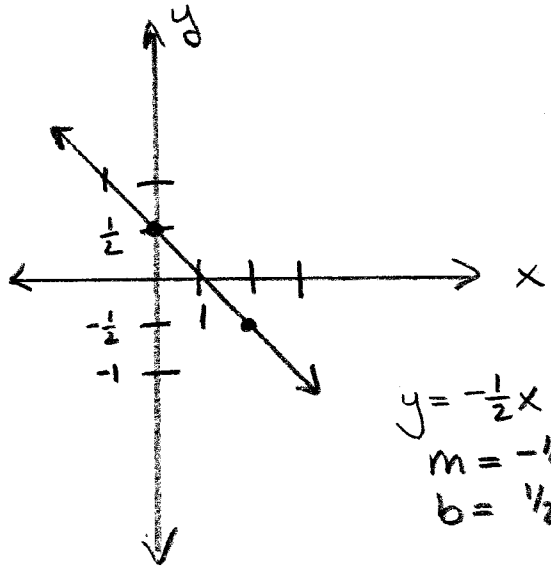
23)



x-int: (4, 0)

y-int: (0, -6)

24)

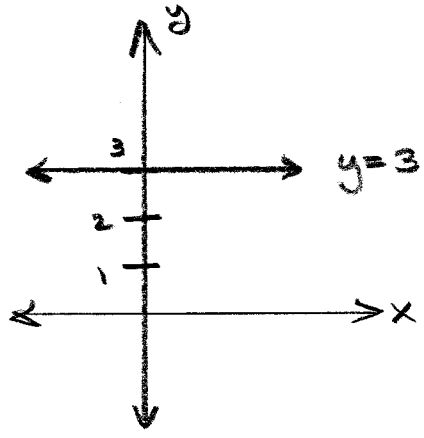


$y = -\frac{1}{2}x + \frac{1}{2}$

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

$b = \frac{1}{2}$

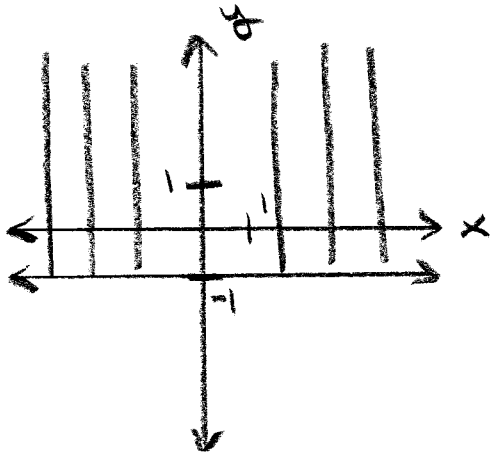
25)



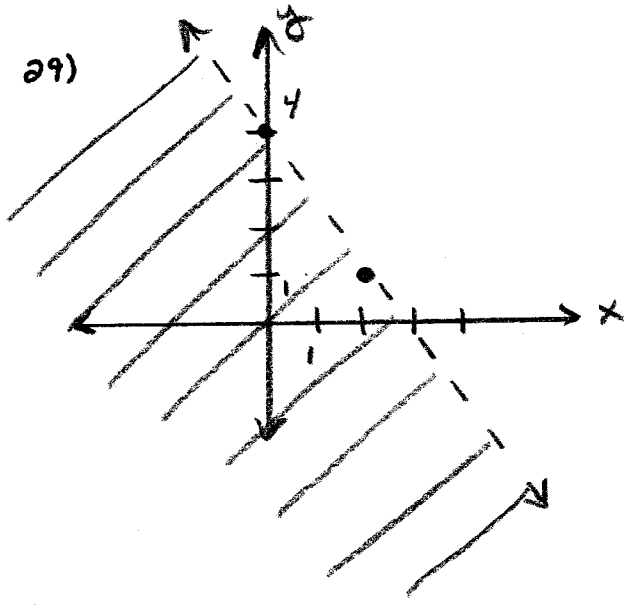
26) function - each domain is paired with exactly one range

27) relation - one domain ($x=6$) is paired with two range values ($y=4$ & $y=3$)

28)

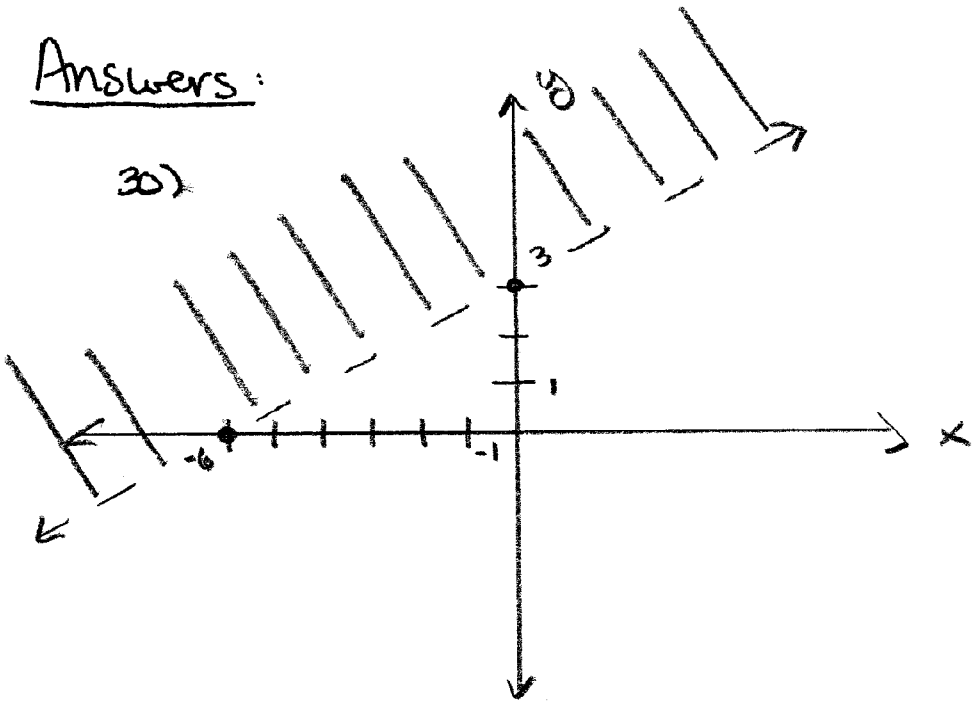


29)



Answers:

30)

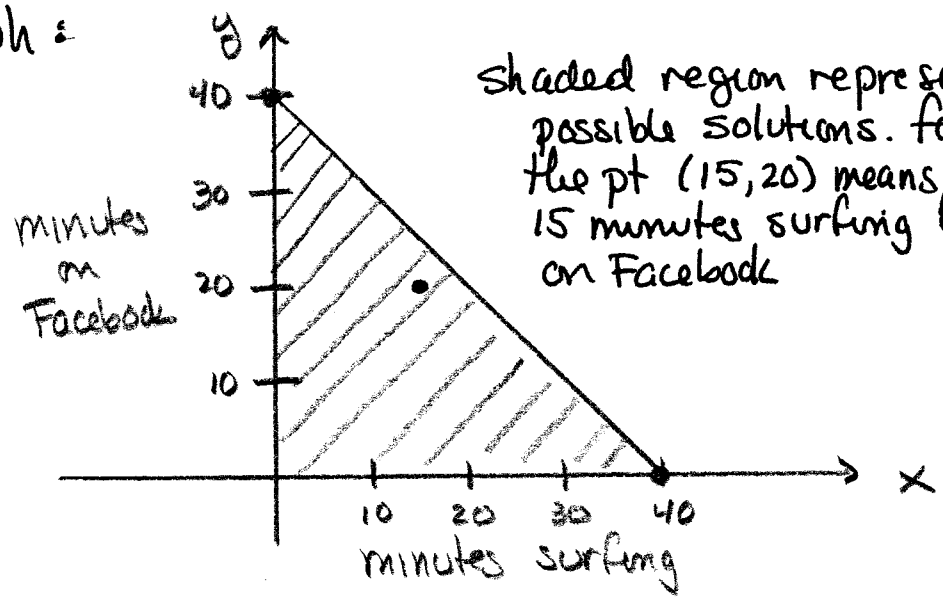


31) Let x = # of minutes surfing

Let y = # of minutes on Facebook

so... the inequality that models this situation is $x+y \leq 40$.

the graph:



shaded region represents all possible solutions. for example, the pt (15,20) means you spent 15 minutes surfing & 20 minutes on Facebook

note: graph in QI only. any other quadrants would mean that x OR y would be negative. this makes no sense if x & y represent time.