Algebra 2 Unit 1 – Equations and Inequalities **Name:** Mrs. MacDonald

Review Must show ALL work to receive full credit

Solve each equation for the variable.

1) $2x + 5 = 19$

$2x = 14$

$\boxed{x = 7}$

2) $-2(x - 4) = 5x + 4 + 2x + 1$

$-2x + 8 = 7x + 5$

$8 = 9x + 5$

$3 = 9x$

$\frac{3}{9} = \frac{9x}{9}$

$\boxed{x = 1/3}$

3) $4(x - 2) = -32$

$4x - 8 = -32$

$4x = -24$

$\boxed{x = -6}$

4) $6(x - 6) = -2x - 4$

$6x - 36 = -2x - 4$

$8x - 36 = -4$

$8x = 32$

$\boxed{x = 4}$

5) $\frac{x}{4} + 8 = 3$

$4 \cdot \frac{x}{4} = -5 \cdot 4$

$\boxed{x = -20}$

6) $\frac{1}{2}y + 8 = 20$

$\frac{2}{1} \cdot \frac{1}{2}y = 12 \cdot \frac{2}{1}$

$\boxed{y = 24}$

7) $x - 6 = -6$

$\boxed{x = 0}$

8) $5(r - 4) + 3 = -2(r - 1) + 2$

$5r - 20 + 3 = -2r + 2 + 2$

$5r - 17 = -2r + 4$

$7r - 17 = 4$

$7r = 21$

$\boxed{r = 3}$

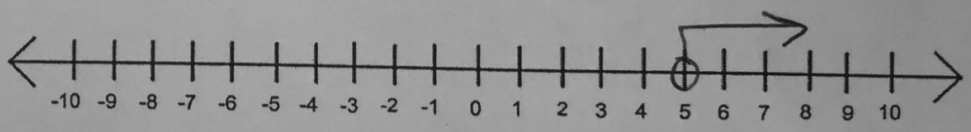
Solve the inequality and graph the solution.

9) $5y - 3 > 2y + 12$

$3y - 3 > 12$

$3y > 15$

$\boxed{y > 5}$

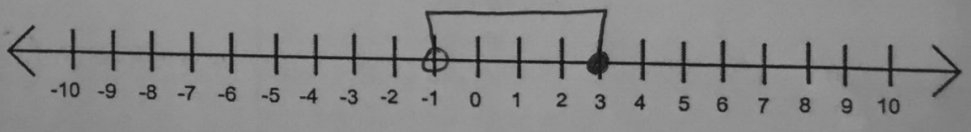


10) $-3 < 2x - 1 \leq 5$

$+1 \quad +1 \quad +1$

$\frac{-2}{2} < \frac{2x}{2} \leq \frac{6}{2}$

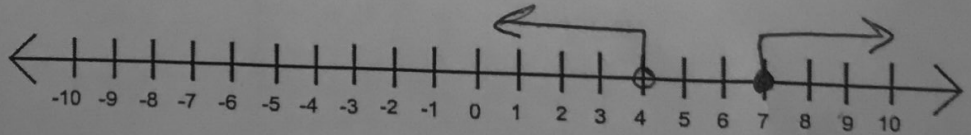
$\boxed{-1 < x \leq 3}$



11) $2x - 3 < 5$ or $3x - 4 \geq 17$

$2x < 8$ $\quad$ $3x \geq 21$

$\boxed{x < 4}$ $\quad$ $\boxed{x \geq 7}$

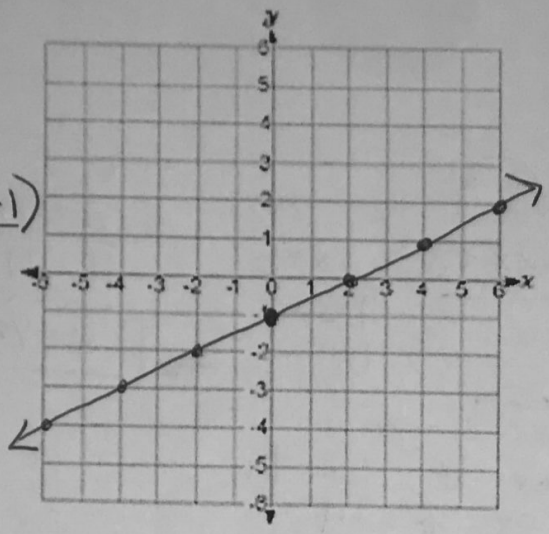


Graph the following.

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

slope = 1/2

y-intercept = (0, -1)



Circle One:

Rises

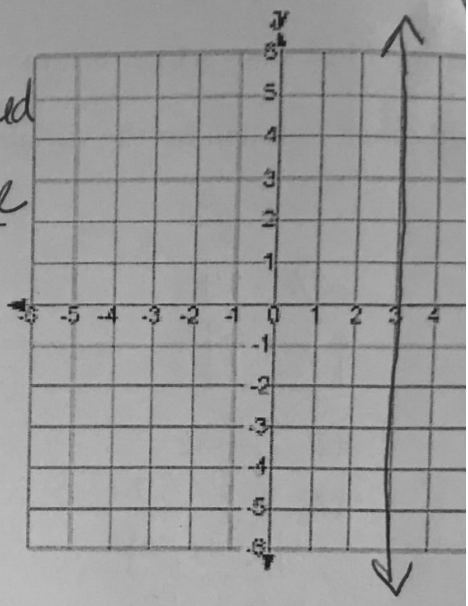
Falls

Neither

15) $x = 3$

slope = undefined

y-intercept = none



Circle One:

Rises

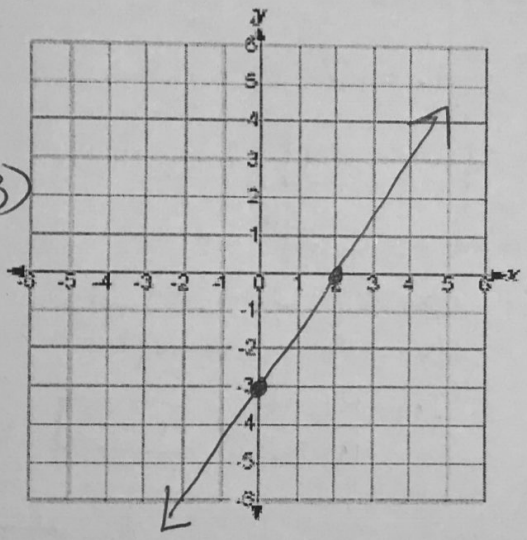
Falls

Neither

13) $3x - 2y = 6$

slope = 3/2

y-intercept = (0, -3)



Circle One:

Rises

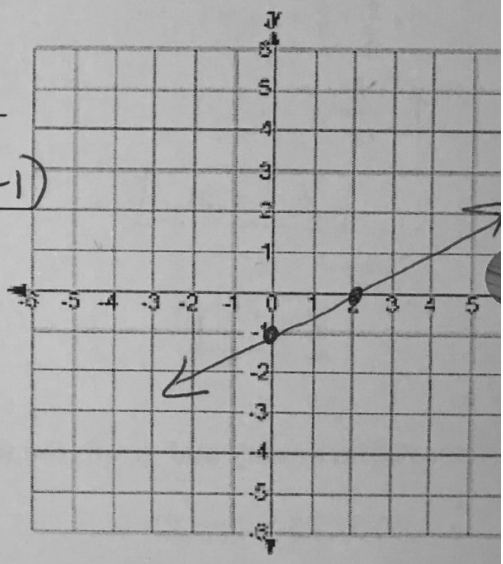
Falls

Neither

16) $x - 2y = 2$

slope = 1/2

y-intercept = (0, -1)



Circle One:

Rises

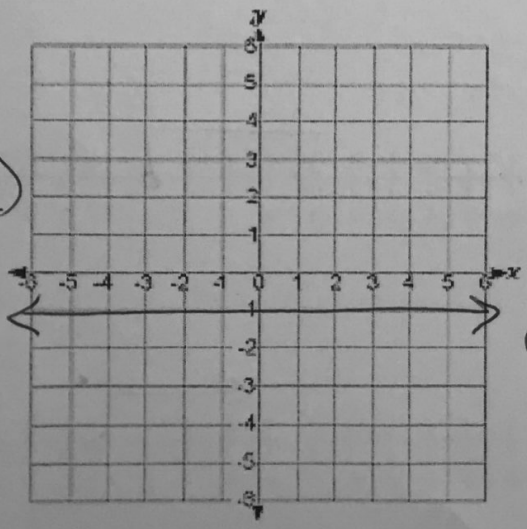
Falls

Neither

14) $y = -1$

slope = 0

y-intercept = (0, -1)



Circle One:

Rises

Falls

Neither

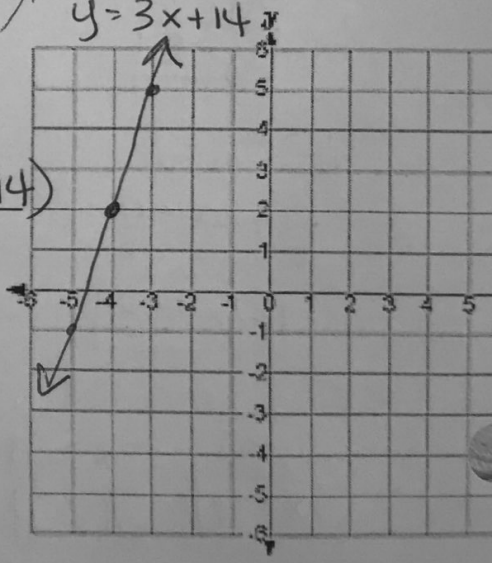
17) $y - 2 = 3(x + 4)$

$y - 2 = 3x + 12$

$y = 3x + 14$

slope = 3

y-intercept = (0, 14)



Circle One:

Rises

Falls

Neither

rite the POINT SLOPE equation of the line given the following information.

18) through (2,-5) , m = -3

$y+5=-3(x-2)$

19) through (4, -2) and (2, -5)

$m=\frac{-5-2}{2-4}=\frac{-7}{-2}=1$

$y+2=1(x-4)$ OR $y+5=1(x-2)$

20) through (-2,5) , m = 0

$y-5=0(x+2)$

OR $y=5$

Write the SLOPE INTERCEPT equation of the line given the following information.

21) m = -2, through (0 ,-3)

$y=-2x-3$

22) through (2, 3) and (5, 6)

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

$y=1x+1$

$y=mx+b$
$3=1(2)+b$
$3=2+b$
$b=1$

23) through (-1,3) and (4, 5)

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

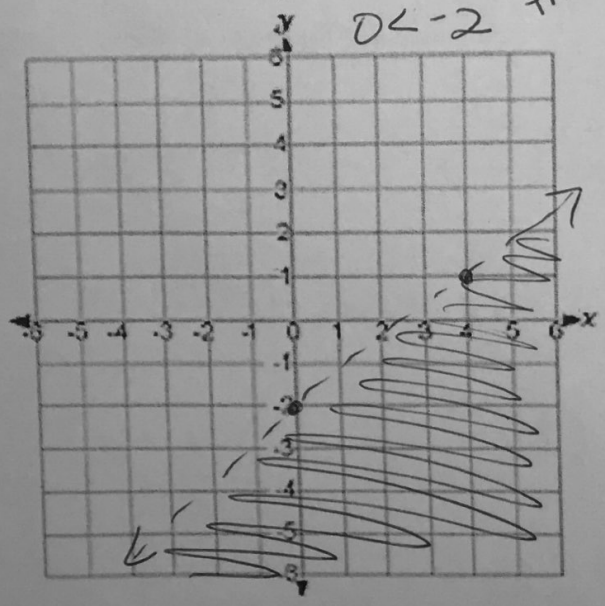
$y=\frac{2}{5}x+3.4$

$y=mx+b$
$5=\frac{2}{5}(4)+b$
$5=\frac{8}{5}+b$
$5=1.6+b$
$b=3.4$

Graph the inequality. Make sure to shade appropriately!

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

$0<\frac{3}{4}(0)-2$
$0<0-2$ not true!
$0<-2$



25) $y\geq\frac{-1}{5}x+3$

$0\geq\frac{-1}{5}(0)+3$
$0\geq 0+3$
$0\geq 3$ not true!