M118
FALL 2000

QUIZ 12

NAME: _____

1) (10 PTS.) Find the coordinates of the x-intercept and of the y-intercept of the line given by $3x + 4y = 18$.

y-intercept:

$x=0 \Rightarrow 3\cdot 0 + 4y = 18 \Rightarrow y = 18/4 = 9/2$

x-intercept

$y=0 \Rightarrow 3x + 4\cdot 0 = 18 \Rightarrow x = 6$

Answer: x intercept = (6 , 0) y intercept = (0, 9/2)

2) (20 PTS.) Find the equation of the line that passes thru the points $(3, -2)$ and $(2, 10)$. Express your answer in the form $y = mx + b$ by filling in the blanks below for the values of m and b.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{10-(-2)}{2-3} = \frac{12}{-1} = -12$$

$\Rightarrow \quad y = -12x + b$

SUBSTITUTE $x=3$, $y=-2$

$-2 = -12\cdot 3 + b$

$-2 = -36 + b$

$34 = b$

Check:

$-2 = -12\cdot 3 + 34$ @ $(3,-2)$

$10 = -12\cdot 2 + 34$ @ $(2,10)$

Answer: Fill in the blanks: $y =$ -12 $x +$ 34

SEE OTHER SIDE

3) (20 PTS.) Find the point of intesection of the two lines given by $2x + 10y = 4$ and $5x + 2y = -1$.

$$2x + 10y = 4$$
$$5x + 2y = -1$$

$\times 5$ $\times 2$

$$10x + 50y = 20$$
$$10x + 4y = -2$$
$$\overline{0x + 46y = 22}$$

$$y = 22/46 = 11/23$$

SUBSTITUTE THIS INTO $2x+10y=4$

$$2x + 10 \cdot \frac{11}{23} = 4$$

$$x = \frac{4 - \frac{110}{23}}{2} = 2 - \frac{55}{23} = \frac{46}{23} - \frac{55}{23}$$
$$= \frac{9}{23}$$

Answer: $\left(\frac{9}{23}, \frac{11}{23}\right)$