

Quiz 1 Math 1520 (20 mins)

NAME : _____

Write your answers in the space provided.

1. For the line $3x + 2y = 10$,

the slope is

the x -intercept is

the y -intercept is

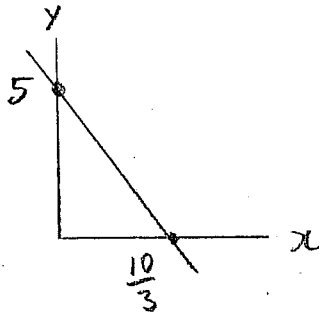
Draw a graph of this line below.

$$2y = -3x + 10 \text{ or } y = -\frac{3}{2}x + 5$$

$$3x = 10$$

$$\frac{-3/2}{10/3} = \frac{5}{10}$$

(2)
(2)
(2)



(4)

2. The supply and demand functions of a certain product are given by $p = S(q) = 10q + 2$, $p = D(q) = 47 - 5q$.

The equilibrium price is

The equilibrium quantity is

at eq.

$$p = S(q) = D(q)$$

$$10q + 2 = 47 - 5q$$

$$15q = 45 \text{ or } q = 3$$

$$p = 10(3) + 2 = 32$$

$$\frac{32}{3}$$

(2)
(4)

3. The cost (in dollars) of producing x units of a product is $C(x) = 10x + 5$. The revenue from selling x units is $15x$.

The cost of producing 10 units is

The profit function is

How many units must be sold to obtain a profit of \$100?

The break-even quantity is

$$C(10) = 10 \cdot 10 + 5$$

$$15x - (10x + 5)$$

$$100 = 5x - 5$$

$$\text{or } 105 = 5x$$

$$\frac{105}{5x - 5} = \frac{21}{1}$$

(2)
(2)
(2)
(2)

at break-even, profit = 0

$$5x - 5 = 0$$

$$x = 1$$

4. Find the equation of the line which passes through the point $(-1, 5)$ and is perpendicular to the line $2x + y = 3$.

$$y = -2x + 3 \text{ has slope } -2$$

\therefore slope of desired line is $\frac{1}{2}$

$$\therefore \text{ line is } y - 5 = \frac{1}{2}(x + 1) \text{ or } y = \frac{x}{2} + \frac{11}{2}$$

(5)