MA 131 HW # 1 Solutions

Section 1.1

1.) $\boxed{m = -7, \ b = 3}$

6.) $4x + 9y = -1$

$\quad 9y = -4x - 1$

$\quad y = -\dfrac{4}{9}x - \dfrac{1}{9}$

$\boxed{m = -\dfrac{4}{9}, \quad b = -\dfrac{1}{9}}$

8.) $\boxed{y + 2 = 2(x - 1)}$

12.) $m = \dfrac{4-1}{1-\frac{1}{2}} = \dfrac{3}{\frac{1}{2}} = 6$

$\boxed{y - 4 = 6(x - 1)}$

31.) a) $x + y = -1$

$\quad\quad y = -x + 1$

$\quad\quad \boxed{\text{Graph C}}$

b) $x - y = 1$

$\quad\quad x - 1 = y$

$\quad\quad \boxed{\text{Graph B}}$

c) $x + y = -1$

$\quad\quad y = -x - 1$

$\quad\quad \boxed{\text{Graph D}}$

d) $x - y = -1$

$\quad\quad x + 1 = y$

$\quad\quad \boxed{\text{Graph A}}$

42.) $\ell_2$ has greater slope

47.a) $C(10) = 12(10) + 1100 = 120 + 1100 = 1220$

$\boxed{\$1,220}$

b) $\boxed{\text{Marginal Cost} = \$12}$

c) $\dfrac{C(11) - C(10)}{11 - 10} = \$12$

$\boxed{C(11) - C(10) = \$12}$

59.) $\boxed{y = 6x + 1.5}$

60.) Input $= \dfrac{6\,mL}{min}$

Output $= \dfrac{2mL}{hr} \cdot \dfrac{hr}{60m} = \dfrac{1}{30} \dfrac{mL}{min}$

Rate of Change $= 6 - \dfrac{1}{30} = \dfrac{180-1}{30} = \dfrac{179}{30}$

$\boxed{y = \dfrac{179}{30} x + 1.5}$

# Section 1.2

2) 0 (It's a horizontal line)

4.) Slope $= \dfrac{\text{Change in } y}{\text{Change in } x} = \dfrac{2}{2} = 1$

5.) Small Positive Slope

6.) Large Positive Slope

7.) Zero Slope

8.) Large Negative Slope

9.) Zero Slope

10.) Small Negative Slope
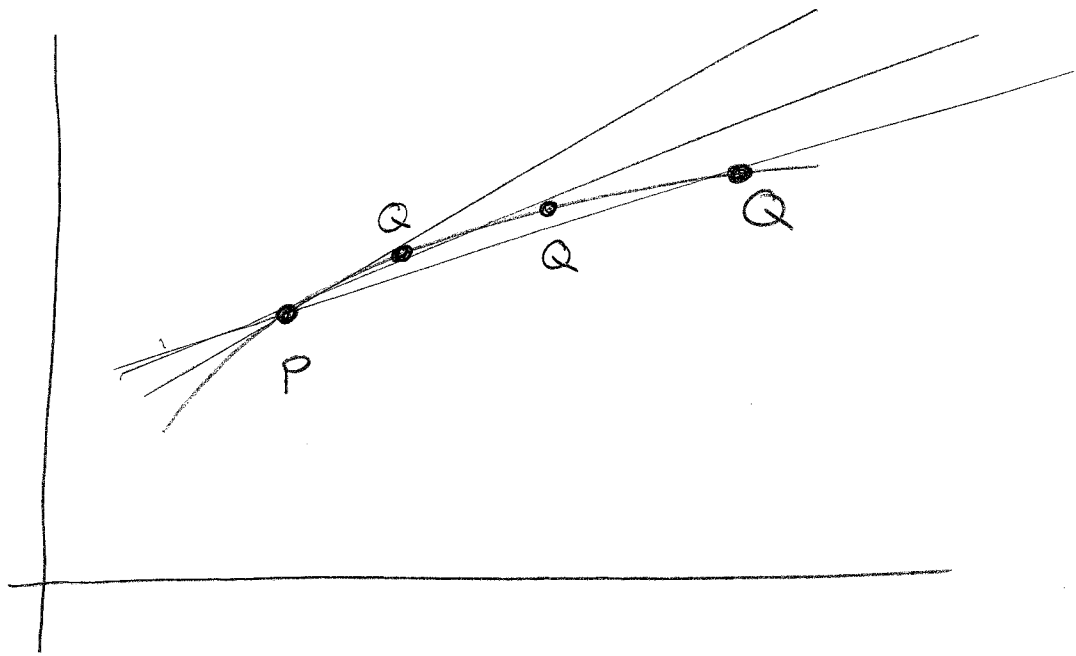
14.) Price on April 14, 2008 $\approx$ \$111

Price on April 15, 2008 $\approx$ \$112

Rate of Change $= \dfrac{\text{Change in Price}}{\text{Change in Time}}$

$\approx \dfrac{\$112 - \$111}{1 \text{ Day}} = \$1/\text{Day}$

37. a) Slope of $\ell = \dfrac{13-4}{5-2} = \dfrac{9}{3} = 3$

Length of $d = 13 - 4 = 9$

b.)



Slope increases as Q moves towards P

38.)



$f(3+h)$

$f(3) = 3$

(e)

(c)

(d)

(b)

(a)

3

$3+h$