|	VS A	VS B
1	C	A
2	A	A
3	D	C
4	B	B
5	C	C
6	D	D
7	C	C
8	None	None
9	B	B
10	D	A
11	C	D
12	E	E
13	B	C
14	A	B

Section # _____   Name _____

UF ID # _____   Signature _____

YOU MUST SHOW ALL WORK TO RECEIVE FULL CREDIT.

1. Let $f(x) = 2x^2 - 3x + 4$. Find and simplify the difference quotient $\dfrac{f(x+h) - f(x)}{h}$.

$$\frac{f(x+h) - f(x)}{h} = \frac{2(x+h)^2 - 3(x+h) + 4 - (2x^2 - 3x + 4)}{h}$$

$$= \frac{2(x^2 + 2xh + h^2) - 3x - 3h - 4 - 2x^2 + 3x - 4}{h}$$

$$= \frac{2x^2 + 4xh + 2h^2 - 3x - 3h - 4 - 2x^2 + 3x - 4}{h}$$

$$= \frac{4xh + 2h^2 - 3h}{h}$$

$$= \frac{h(4x + 2h - 3)}{h}$$

$$= 4x + 2h - 3$$

5A

2. Use the graph of the function $f(x)$ is given below. Answer the following questions.
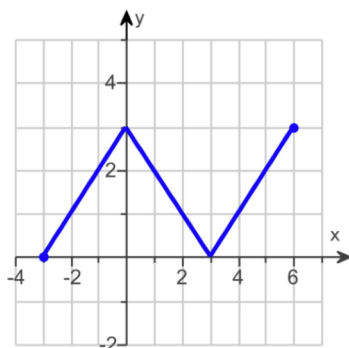
(a) State the domain.

$[-3,6]$

(b) State the range.

$[0,3]$

(c) Find $f(-3)$ $= 0$

(d) What are the values of x for which $f(x) = 1$

$X = -2, 2, 4$

(e) Find $(f \circ f)(3)$ $= f(f(3))$
$= f(0)$
$= 3$

6A

3. Suppose the depand and price for a certain model of youth wrist watch are related by the following equation. $p = D(q) = 16 - 1.25q$ where p is the price (in dollars) and q is the quantity demanded(in hundreds).
   Suppose the price and supply are related by the following equation. $p = S(q) = .75q$

   (a) Find the price when the demand is 0 watches.

   $$p = 16 - 1.25(0) = 16$$

   (b) Find the price when the demand is 400 watches.

   $$p = 16 - 1.25(4) = 11$$

   (c) Find the quantity demanded for the watches when the price is $6.

   $$6 = 16 - 1.25q$$
   $$q = 8 \qquad 800 \text{ watches}$$

   (d) Find the quantity supplied at a price of $0.

   $$0 = .75q$$
   $$q = 0 \qquad 0 \text{ watches}$$

   (e) Find the quantity supplied at a price of $10.

   $$10 = .75q$$
   $$q = 13.3 \qquad 1,333 \text{ watches}$$

   (f) Find the equilibrium quantity and equilibrium price.

   $$16 - 1.25q = .75q$$
   $$16 = 2q \qquad 800 \text{ watches}$$
   $$q = 8$$

7A

(p, q)

$($

4. While reviewing his accounts over the past year, the manager of a mall T-shirt stand made the following observations. During a normal week, he sold an average of 40 Gator T-shirts at a price \$18 each. When he reduced the price by \$6 for a clearance sale, an average of 10 more T-shirts sold per week.

(a) Find a linear model expressing demand x, the average number of T-shirts sold weekly as function of p, the price of a T-shirt.

$(18, 40)$

$(12, 50)$

$m = \dfrac{10}{-6} = -\dfrac{5}{3}$

$y - 50 = -\dfrac{5}{3}(p - 12)$

$y - 50 = -\dfrac{5}{3}p + 20$

$x(p) = \underline{-\dfrac{5}{3}p + 70}$

(b) One week the manager sold 58 T-shirts. Use your function to find the selling price of a T-shirt that week.

$58 = -\dfrac{5}{3}p + 70$

$-12 = -\dfrac{5}{3}p$

$p = 7.20$

$\$7.20$

8A