

HW4 Sample Problems to Assist in Solving HW4 Problems

I. If $f(x) = x^2 + 3x$ and $g(x) = -x + 2$, find:

1. $(f + g)(1) = f(1) + g(1)$

2. $(g - f)(2) = g(2) - f(2)$

3. $g(-3)$

4. $f(-1)$

5. $f(-2)$

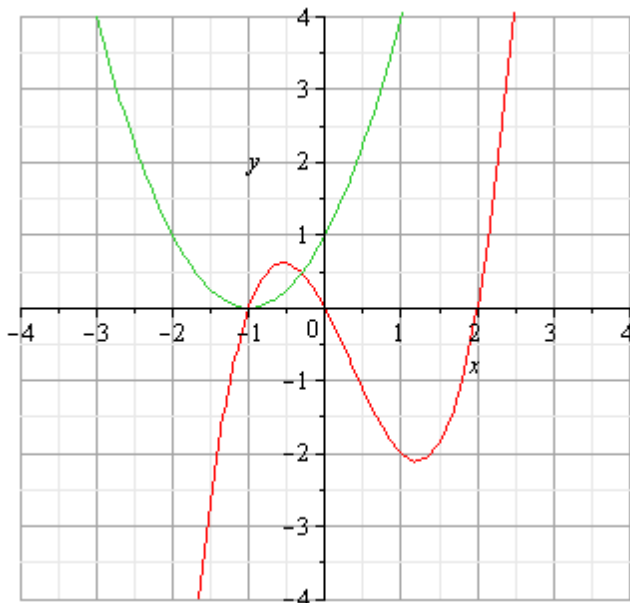
6. $(f/g)(0) = f(0)/g(0)$

7. $(g/f)(0) = g(0)/f(0)$

II. Consider the graphs below

$g(x) \downarrow$

$f(x) \downarrow$



Find, using the coordinates of the graph, the following quantities:

1. $f(1) + g(1) = (f + g)(1)$

2. $f(2) + g(-1)$

3. $f(0) \cdot g(0) = (f \cdot g)(0)$

4. $f(1/2) / g(1/2) = (f/g)(1/2)$

III. A company manufactures and sells flashlights. For a particular model, the marketing research and financial departments estimate that at a price x in dollars per unit, the weekly cost and revenue in thousands of dollars is:

$$C(x) = 7 - x \quad \text{and} \quad R(x) = 5x - x^2$$

1. Find the profit equation, if Profit = Revenue - Cost.
2. Find $C(2)$ and $R(2)$.
3. In problem 3 above, is there a profit or loss?

IV. At \$0.60 per bushel, the daily supply for wheat is 450 bushels and the daily demand is 645 bushels. When the price is raised to \$0.90 per bushel, the daily supply increases to 750 bushels and the daily demand decreases to 495 bushels. The supply curve goes through the two points (0.60, 450) and (0.90, 750). On the graph below plot the line connecting these two points. The demand curve goes through the two points (0.60, 645) and (0.90, 495). On the same graph below, plot the line connecting these two points. Find the equilibrium point for this situation. That is at what price does supply equal demand?

