MATH 12

EXTRA PROBLEMS

1. Solve $x^2 - 6x - 11 = 0$ using
   a) completing the square.
   b) the quadratic formula.

2. Solve $2x^2 - 6x + 3 = 0$ using
   a) completing the square.
   b) the quadratic formula.

3. Find a point $P$ on the curve $y = x^3$ such that the slope of the line through $P$ and $(1, 1)$ is $3/4$.

4. Find the reflection of the point $P(2, 1)$ in the line $y = 3x$.

5. If the points $P(8, 2)$ and $Q(4, 8)$ are symmetric around the line $l$, find the slope-intercept form for $l$.

6. Factor the following:
   a) $x^4 + 64$  
   b) $x^4 - 15x^2 + 9$  
   [Hint: complete the square by adding (and subtracting) a term in the middle.]

FIND AND SIMPLIFY

1. $f(x) = \frac{4}{x^2}$

2. $f(x) = \frac{1}{3x - 5}$

3. $f(x) = \frac{x}{x - 1}$

4. $f(x) = \sqrt{2x + 5}$