Name _____ Date _____
Mr. Schlansky Algebra 2

Applications of Operations with Polynomials

1. Mr. Schlansky's tutoring revenue can be represented by $r(x) = 25x^2 - 90x + 14$ and his costs can be represented by $c(x) = 12x^2 + 21x + 10$. If his profit can be determined using $p(x) = r(x) - c(x)$, write a polynomial function what would represent $p(x)$.

2. Stone Manufacturing has developed a cost model, $C(x) = 0.18x^3 + 0.02x^2 + 4x + 180$, where x is the number of sprockets sold, in thousands. The sales price can be modeled by $S(x) = 95.4 - 6x$ and the company's revenue by $R(x) = x \bullet S(x)$. Express the company's profits, $R(x) - C(x)$.

3. A manufacturing company has developed a cost model, $C(x) = 0.15x^3 + 0.01x^2 + 2x + 120$, where x is the number of items sold, in thousands. The sales price can be modeled by $S(x) = 30 - 0.01x$. Therefore, revenue is modeled by $R(x) = x \bullet S(x)$. Express the company's profit, $P(x) = R(x) - C(x)$.

4. If $f(x) = 2x^2 + 3\text{x} - 4$, evaluate $f(x + 2)$

5. If $f(x) = 3x^2 - 5\text{x} + 1$, evaluate $f(x - 3)$

6. If $f(x) = -2x^2 - 8\text{x} - 3$, evaluate $f(x + 1)$