Section 6.4: Diving Polynomials: Long and Synthetic Division

Division by a Monomial

To divide a polynomial by a monomial, divide each individual term in the polynomial by the divisor and simplify the result.

$$\frac{a+b}{c}=\frac{a}{c}+\frac{b}{c}, c\neq 0$$

Example 1: Divide.

a. $\dfrac{9p^4-12p^3+3p^2}{3p}$

b. $\dfrac{x^4y^4+8x^2y^2-4xy}{-4x^3y}$

For the given functions $f(x) = 8x^2 - 8x + 8$ and $g(x) = 4x$, find $\dfrac{f(x)}{g(x)}$. Also find any x-values that are not in the domain of $\dfrac{f(x)}{g(x)}$,