Unit 2 Worksheet 9
Calculus 1

For each of the following pairs of functions find
$$(f + g)(x), (f - g)(x), (fg)(x), \text{ and } \left(\frac{f}{g}\right)(x).$$

1. $f(x) = x^2 - 4 \ \ and \ \ g(x) = x + 2$

2. $f(x) = 4x^3 \ \ and \ \ g(x) = 2x^2 - 4x$

3. $f(x) = \dfrac{3}{x} \ \ and \ \ g(x) = \dfrac{5}{x-2}$

4. $f(x) = \dfrac{2}{x+3} \ \ and \ \ g(x) = \dfrac{1}{x-2}$

5. $f(x) = 2x^2 - 5 \ \ and \ \ g(x) = x + 9$

For each of the following pairs of functions find
$$(f \circ g)(x), \text{ and } (g \circ f)(x).$$

6. $f(x) = x^2 \ \ and \ \ g(x) = x^3 - 3x + 5$

7. $f(x) = \dfrac{1}{x+3} \ \ and \ \ g(x) = \dfrac{1}{x^2}$

8. $f(x) = x + 5 \ \ and \ \ g(x) = x^3$

9. $f(x) = \dfrac{1}{x} \ \ and \ \ g(x) = \dfrac{2}{x-1}$

10. $f(x) = 2x^2 - 5 \ \ and \ \ g(x) = x + 9$