

### Extra Continuity Problems Homework

Directions: Using the three-step definition of continuity at a point, determine whether the function is continuous or not at the given x-value.

1.  $f(x) = 3x^4 - 5x^2 + 6$  at  $x = 2$

2.  $f(x) = \frac{6x}{x^2 + 2x - 15}$  at  $x = -5$

3.  $f(x) = \begin{cases} x^2 - 3x & x \neq 5 \\ x + 4 & x = 5 \end{cases}$  at  $x = 5$

4.  $f(x) = \begin{cases} 10 - x^2 & x \leq 3 \\ 2x - 15 & x > 3 \end{cases}$  at  $x = -2$

5.  $f(x) = \begin{cases} 3 - \cos(x) & x > \pi \\ \tan(x) + 3 & x \leq \pi \end{cases}$  at  $x = \pi$

6.  $f(x) = \frac{x^3 - 4x}{x^2 + x}$  at  $x = 0$

7.  $f(x) = \sin(2x) + \tan(x) + 1$  at  $x = \pi/4$