6. Let $f(x) = -x^2 + 3x - 5$
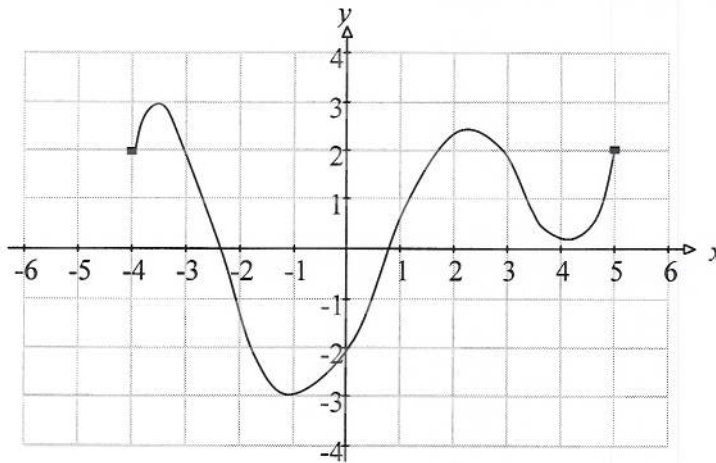
   a) Evaluate $f(-4)$

   $$f(-4) = -(-4)^2 + 3(-4) - 5 = -16 - 12 - 5 = -33$$

   b) Find and **simplify** $f(a-2)$

   $$f(a-2) = -(a-2)^2 + 3(a-2) - 5$$
   $$= -[(a-2)(a-2)] + 3(a-2) - 5$$
   $$= -[a^2 - 2a - 2a + 4] + 3a - 6 - 5$$
   $$= -[a^2 - 4a + 4] + 3a - 6 - 5$$
   $$= -a^2 + 4a - 4 + 3a - 6 - 5$$
   $$= -a^2 + 7a - 15$$

7. Give the domain, range, and specific function values for the following graph:

   Domain: $[-4, 5]$

   alternative: $\{x \in \mathbb{R} \mid -4 \le x \le 5\}$

   Range: $[-3, 3]$

   alternative: $\{y \in \mathbb{R} \mid -3 \le y \le 3\}$

   For this graph, give the following:

   $f(-3) = 2$

   $f(0) = -2$

   $f(-1) = -3$

   $f(5) = 2$

8. Let $f(x) = x^2 + 5$ and $g(x) = 2x - 6$

   a) Find $(f - g)(x)$ and simplify

   $$(f-g)(x) = f(x) - g(x) = x^2 + 5 - (2x - 6) = x^2 + 5 - 2x + 6$$
   $$= x^2 - 2x + 11$$