HW #2 – MA 131

Section 0.1

34.) $f(7) = -1$

36.) $f(-1) = 0$

38.) $f(6)$ is negative

40.) $f(1) > f(6)$ since $f(1)$ positive and $f(6)$ negative

48.) $f(-2) = (-2)(5 + -2)(4 - -2)$

$= (-2)(3)(6) = (-2)(18) = -36$

$(-2, 12)$ is not on the graph of $f(x)$

since $f(-2) \neq 12$

Section 0.5

2.) $(-2)^3 = (-2)(-2)(-2) = (-2)(4) = -8$

4.) $0^{25} = 0$

14.) $(1/2)^{-1} = \frac{(1)^{-1}}{(2)^{-1}} = \frac{1}{2^{-1}} = 2^1 = 2$

30.) $(3^{1/3} \cdot 3^{1/6})^6 = 3^{6/3} 3^{6/6} = 3^2 3^1 = 3^3 = 27$

44.) $\frac{1}{x^{-3}} = x^3$

52.) $x^{-3} x^7 = x^{-3+7} = x^4$

58.) $(-3x)^3 = (-3x)(-3x)(-3x) = (-3)(-3)(-3)x^3 = -27x^3$

Section 1.4

2.) $\lim_{x \to 3} g(x) = 2$

4.) $\lim_{x \to 3} g(x)$ DNE

6.) $\lim_{x \to 3} g(x)$ DNE

8.) $\lim_{x \to 2} \frac{x}{x-2}$ DNE

9.) $\lim_{x \to 3} \sqrt{x^2+16} = \sqrt{\lim_{x \to 3}(x^2+16)} = \sqrt{9+16} = \sqrt{25} = 5$

10.) $\lim_{x \to 4} (x^3 - 7) = 4^3 - 7 = 64 - 7 = 57$

12.) $\lim_{x \to 6} \left(\sqrt{6x} + 3x - \frac{1}{x}\right)(x^2 - 4)$

$= \left(\sqrt{6 \cdot 6} + 3 \cdot 6 - \frac{1}{6}\right)(6^2 - 4)$

$= \left(6 + 18 - \frac{1}{6}\right)(36 - 4)$

$= \left(24 - \frac{1}{6}\right)(32) = \left(\frac{144 - 1}{6}\right)(32) = \frac{143 \cdot 32}{6} = \frac{2288}{3}$