MA 181 Test #2 Review – Answers

**Chapter 2 True-False**

16. True $f'(r)\ exists \Rightarrow f\ is\ differentiable\ at\ r \Rightarrow f\ is\ continuous\ at\ r \Rightarrow \lim_{x\to r} f(x) = r$

**Chapter 2 Exercises**

30. (a) 10 (b) y = 10x – 16

**Chapter 3 True-False**

2. False. The Product Rule must be used.

**Chapter 3 Exercises**

38. $\sqrt{3} - \pi/12$ 42. y = -1 48. $f'(x) = 4 - \sec^2 x$

52(a) -2 (b) -3/8 64. (a) $y = \frac{1}{4}x + \frac{1}{4}(\ln 4 + 1)$ (b) $y = ex$

**Additional Review Exercises**

1(a) inches/year

(b) At age 13, the person is growing at a rate of 2 inches per year.

(c) At age 30, the person is not growing.

2.

| | | |
|---|---|---|
| (a) $f'(x) = 15x^2 - 6x + 7$ | (b) $y' = e^x + ex^{e-1}$ | (c) $g'(x) = x^3 - 2x^2 + x + \frac{1}{5}$ |
| (d) $f'(x) = -\frac{16}{x^5} + \frac{9}{2x^4} - \frac{4}{x^3} - \frac{5}{x^2}$ | (e) $y' = \frac{3}{2}x^{1/2} - \frac{3}{2x^{1/2}} + \frac{2}{3x^{1/3}}$ | (f) $f'(x) = 2x + \frac{6}{x^3}$ |
| (g) $g'(x) = \frac{-2x^5 - 6x}{(x^4 - 5x^2 - 3)^2}$ | (h) $f'(x) = 3(\cos^2 x - \sin^2 x)$ | (i) $y' = \frac{4x + 2x\tan x - x^2 \sec^2 x}{(2 + \tan x)^2}$ |

3. y = 5x – 4

4. x = -6, x = 2

5 (a) y = -9x + 6

(b) $x = \pm\frac{1}{2}$