

# Problem Set 3A: Assignment 3

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MAT 123 - Precalculus  
Summer Session II 2018

**DUE DATE: August 1st, 2018 – AT THE BEGINNING OF CLASS.**

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**Exercise 0.** Review sections 3.1 – 3.4. Re-read everything thoroughly. Done? Good! You may now move to **Exercise 1.**

**Exercise 1.** Show that  $\sqrt{23 - 8\sqrt{7}} = 4 - \sqrt{7}$ .

**Exercise 2.** Suppose  $y$  and  $b$  are positive but also that  $b \neq 1/2$  and that  $b \neq 1$ . Show that:

$$\log_{2b} = \frac{\log_b y}{1 + \log_b 2}$$

**Exercise 3.** Explain why

$$\log(\sqrt{10x}) = \frac{1 + \log(x)}{2}$$

**Exercise 4.** Suppose a saving account pays 5% interest per year, compounded four times per year. If the savings account starts with \$600, how many years would it take for the savings account to exceed \$1400?

**Exercise 5.** Solve the following equation:

$$\log_5(x + 5) - \log_5(x - 1) = 2$$