Homework 0207
Monday, February 7, 2022

Name:

Problem 1. Solve $2\log_7(x+4) = \log_7(x+6)$.

Problem 2. Find all $x \in \mathbb{R}$ such that

$$\log_5 343 = x \log_5 \frac{1}{49}.$$

Problem 3. Find all $x \in \mathbb{R}$ such that

$$\log_7 625 = x \log_7 \frac{1}{25}.$$

Problem 4. Find all $x \in \mathbb{R}$ such that

$$\log_x 2x = \frac{1}{2}.$$

Problem 5. Evaluate.

(a) $\log_5 125$

(b) $\log_{27} 9$

(c) $\log_2 160 - \log_2 5$

(d) $\log_5 \sqrt[3]{625}$

(e) $\log_{10} \dfrac{32}{5} - \log_{10} \dfrac{16}{25}$

Problem 6. Solve.

(a) $9^{5x-2} = 27^{3x+7}$

(b) $\log_{11} x = 2$

(c) $\log_2(x+2) + \log_2(x-3) = 2 + \log_2(x+5)$

(d) $1331^{(2x+1)} = \dfrac{1}{121^{(x-5)}}$

(e) $\log_x(x-2) + \log_x(x-6) = 2$