Bellwork Monday, March 17, 2014

Solve each equation. Round to the nearest hundredth.

1. $7^x = 500$

$\log_7 500 = x = 3.19$

$\frac{\log 500}{\log 7} = x =$

2. $10^x = 32$

$\log 32 = x$

$x = 1.51$

3. $4^x = 0.75$

$\log_4 .75 = x = -.21$

4. $2 \cdot 5^{x-3} + 8 = 20$

$5^{(x-3)} = 6$

$\log_5 6 = x - 3$

$x = 4.11$

$2.6\sqrt[x]{8} = 2.23$

5. $5\log_x 8 = 13$

$\log_x 8 = 2.6 \rightarrow \sqrt[2.6]{x^{2.6}} = \sqrt[2.6]{8}$

6. The population of a city in 2003 was 500,000 and decreases 3.5% each year. In how many years will the population reach 100,000? Round to the nearest hundredth.

$\frac{100,000}{500,000} = \frac{500,000(.965)^x}{500,000}$

$.2 = .965^x$

$\log_{.965}(.2) = x = 45.1745$