Bellwork Alg 2 Monday, March 16, 2020

1. Write each in Logarithmic Form.

a) $x^5 = 99$ b) $e^x = 50$ c) $10^3 = x$

2. The value of some real estate has been decreasing 2.3% each year. In 2015 the real estate was worth $250,000. Round each to the nearest hundredth.

a) Find the value of the real estate in 2020.

b) Find the value of the real estate in 2009.

c) Find the number of years it will take for the value of the real estate to reach $175,000

Bellwork Alg 2 Monday, March 16, 2020 ANSWERS

1. Write each in Logarithmic Form.

a) $x^5 = 99$ $\log_x 99 = 5$

b) $e^x = 50$ $\ln 50 = x$

c) $10^3 = x$ $\log x = 3$

2. The value of some real estate has been decreasing 2.3% each year. In 2015 the real estate was worth $250,000. Round each to the nearest hundredth.

$100 - 2.3 = 97.7\% \rightarrow b = .977$

EQ: $y = 250000(.977)^x$

x = # yrs since 2015

a) Find the value of the real estate in 2020.

$x = 2020 - 2015 = 5$

$y = 250000(.977)^5 =$ \$222,542.43

b) Find the value of the real estate in 2009.

$x = 2009 - 2015 = -6$

$y = 250000(.977)^{-6} =$ \$287,456.83

c) Find the number of years it will take for the value of the real estate to reach $175,000

$$\frac{175,000}{250000} = \frac{250000(.977)^x}{250000}$$

$$0.7 = (.977)^x$$

$$\log_{.977}(.7) = x$$

$x = 15.33$ yrs