Algebra 2 Chapter 8 Quiz Review   Spring 2019

1. Tell if each exponential equation represents growth or decay.

a) $y = \frac{3}{7}(1.0047)^x$ b) $y = 800(0.9932)^x$ c) $y = 7.15(\frac{88}{92})^x$

2. Use the given exponential equation to find the % change and whether it represents an increase or a decrease.

a) $y = 25,000(1.003)^x$ b) $y = 175(0.802)^x$

3. Take the given % change and write the base (b) that would be used in an exponential equation.

a) 23% decrease   b) 1.09% increase   c) 0.67% decrease   d) 58% increase

4. Write each in logarithmic form. No calculator can be used on this question.

a) $5^3 = x$ b) $x^7 = 72$ c) $4^x = 100$ d) $10^x = 211$

5. Write each in exponential form. No calculator can be used on this question.

a) $\log_3 x = 20$ b) $\log 478 = x$ c) $\log_x 8 = 3$

6. The value of a rare painting has been increasing 13% each year. In 2005 the painting was worth $25,000.
a) Find the value of the painting in 1990.
b) Find the value of the painting in 2011.
c) In how many years, to the nearest hundredth, will the painting be worth $1,000,000?

7. The population of a city in 1978 was 900,000 and has been decreasing 5.9% each year.
a) Find the population in 1975.
b) Find the popution in 1999.
c) In how many years, to the nearest tenth, will the population be 180,000?

8. The half-life a medication is 30 minutes. At 10:15 am there is 120 mg in a patience bloodstream. Find the amount at the given times, the same day, rounded to the nearest hundredth.
   a) 2:00 pm   b) 7:20 am

9. The number of cells of an organism doubles every 50 minutes. At 7:20 pm there are 1300 cells present. Find the number of cells present at the given times rounded to the nearest whole number.
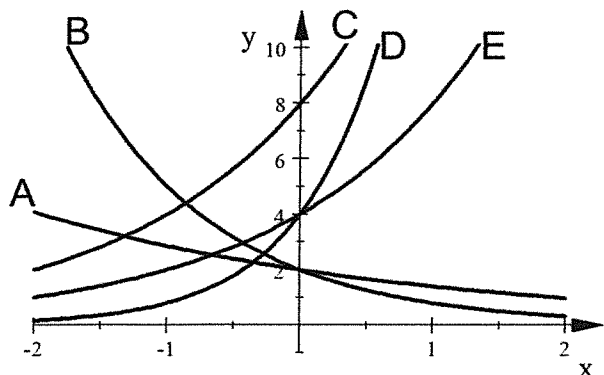   a) 2:45 pm   b) 1:30am the next day

10. Solve each. Round to the nearest hundredth.
a) $11^x = 500$ b) $6(3)^x = 72$ c) $20(.95)^x = 13$ d) $10^{2x} = 308$

11. Match each graph with it's equation. No calculator can be used on this question.
i. $y = 8(2)^x$ ii. $y = 2(0.4)^x$ iii. $y = 4(2)^x$ iv. $y = 2(0.7)^x$ v. $y = 4(5)^x$

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1. a) Growth   b) Decay   c) Decay

2. a) 0.3% increase   b) 19.8% decrease

3. a) $b = 0.77$ b) $b = 1.0109$ c) $b = 0.9933$ d) $b = 1.58$

4. a) $\log_5 x = 3$ b) $\log_x 72 = 7$ c) $\log_4 100 = x$ d) $\log 211 = x$

5. a) $3^{20} = x$ b) $10^x = 478$ c) $x^3 = 8$

6. a) $3997.27   b) $52,048.79   c) 30.18 years

7. a) 1,080,124 people   b) 250,972 people   c) 26.5 years

8. a) 0.66 mg (225 min→ $x = 7.5$)   b) 6842.10 mg (-175 min→ $x = \frac{-175}{30}$)

9. a) 29 cells (-275 min→ $x = -5.5$)   b) 219,566 cells (370 min→ $x = 7.4$)

10. a) $x = 2.59$ b) $x = 2.26$ c) $x = 8.40$ d) $x = 1.24$

11. i-C   ii-B   iii-E   iv-A   v-D