

Alg 2 Ch 6 Practice Test. Monday, April 13, 2020

Round to the nearest hundredth unless noted otherwise or the situation dictates so.

1. The value of an investment has been increasing 6.4% each year. In 2009 the value was \$125,000. Round each to the nearest hundredth.

- Find the value of the investment to the 2001.
- Find the value of the investment in 2020.
- In how many years will the investments value reach \$300,000?

2. Use all three properties of logs to write as a single logarithm. $7\log K - 8\log C - 2\log W + 4\log E$

3. Use all three properties of logarithms to expand as much as possible. $\log\left(\frac{B^9 M^2}{P^3 Z^5}\right)$

For 4 to 11 solve each equation.

4. $\log_{12}(x - 4) + \log_{12}(x + 3) = 2$

5. $\log_3(x + 6) = \log_3(x^2 + 2x)$

6. $\log(9x + 7) - \log(x - 2) = 1$

7. $\ln(x - 8) + 11 = 15$

8. $11^{4x} = 500$

9. $10e^{2x-1} = 52$

10. $7^{x-1} = 12^{3x}$

11. $4^{x-3} = 32^{2x}$

12. Write the equation of the exponential function ($y = a \cdot b^x$) that passes through these two points: (5, 1458) & (7, 13122)

13. The half-life of a medicine is 50 minutes. A 500 ml dose is given at 9:20 am. Find the amount remaining at 1:05 pm the same day.

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ANSWERS

1. eq: $y = 125000(1.064)^x$ $x = \# \text{ yrs since 2009}$

a) \$76,098.66 ($x = -8$) b) \$247,324.94 ($x = 11$) c) $x = 14.11 \text{ yrs}$

2. $\log \frac{K^7 E^4}{C^8 W^2}$

3. $9 \log B + 2 \log M - 3 \log P - 5 \log Z$

4. $x = 13$ (-12 is an extraneous solution)

5. $x = -3, 2$

6. $x = 27$

7. $x = 62.60$

8. $x = 0.65$

9. $x = 1.32$

10. $x = -0.35$ take the log of both sides, move exponents out front as coefficients then finish solving for x

11. $x = -0.75$ you can write both bases as powers of 2 then, since the bases are the same you can just set the exponents equal to each other. Or you could solve the same was as #10.

12. $y = 6(3)^x$

13. 22.10 ml remaining (exponent $x = 4.5$)