

Happy Wednesday, November 2nd!

Do Now: $\log(0)$
 $10^x = 0$

Find the domain and range of

$$f(x) = \log(x - 3)$$



$10^y = x - 3$ D: $(3, \infty)$ R: $(-\infty, \infty)$

Nov 2-7:22 AM

Quiz Monday so that we can Unit 3 Test on Friday
 and be done!!

No school Tuesday (election day)

Nov 2-7:30 AM

Let's look at the homework together:

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

1) How much money will you make if you invest \$27,000 at a rate of 3.75% compounded quarterly over three years? $.0375$ $n=4$

$$A = 27,000 \left(1 + \frac{.0375}{4} \right)^{4 \cdot 3}$$

\$30199.12

1b) Change this to compound monthly instead.

$$n=12$$

\$30209.70

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\$200
8 years
5%
Compounded annually

$$A = 200 \left(1 + \frac{.05}{1} \right)^{1 \cdot 8}$$

\$295.49

Nov 2-12:58 PM

Let's look at the homework together:

1	29	$A = P(0.5)^t$
2	58	
3	87	

$t = \# \text{ of } 1/2 \text{ lives}$

1) Half-life of strontium is 29 years. How much of a 200g sample will remain after 50 years?

$\frac{50}{29} = 1.7 \text{ half-lives in } 50 \text{ yrs}$

60.5 g

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Let's look at the homework together:

2.16×5730
 $(2,376 \text{ yrs})$
 $.224 = 1 (0.5)^t$

Half life of carbon 5,730 years!

a) New carbon activity is only .224 times that of today. What is the approximate age of the bone?

$t = \log_{.5} .224$
 $t = 2.16$
 $\ln .224 = \ln 0.5^t$
 $\ln .224 = t \ln 0.5$
 $\frac{\ln .224}{\ln 0.5} = t$

b) Fossil footprint: You don't have enough information! :(

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Exponential Population Model

If there starting population of a town was 10,000 and it grew by 17% a year, what would you do to get the population after one year?

$$\times 10,000 (.17) + 10,000$$

$$\times 10,000 (1.17)$$

Two yrs?

$$10,000 (1.17)^2$$

$$A = P (1 + r)^t$$

Mar 13-9:06 PM

Properties of Exponential and Logarithmic Equations

$$a^x = a^y$$

$$\log_a (a^x) = x$$

$$\log_a (x) = \log_a (y)$$

$$a^{\log_a x} = x$$

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$$\frac{1}{4} = 8^{2x+1}$$

$$32 \left(\frac{1}{4} \right)^{x/3} = 2$$

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Exit Slip:

Solve for x:

Nov 2-8:02 AM

$$3 \log_4(1-x) = 6$$

$$11(.78)^{-x} = 25.3$$

Nov 2-7:59 AM