Algebra II & Trigonometry Name _____
Final Exam in class review
Chapter 8: Exponential and Logarithms.

1. *We started by looking at scenarios that involved exponential growth or decay.* 10 pez dispensers are in a vault. Find a formula for the number of dispensers t years later if the amount…

(a) Doubles every 3 years. _____ (b) Has a half life of 12 years . _____

(c) Grows by 12% every year _____ (d) Drops by 12% every year. _____

2. *We got that awesome formula for compound interest:* Billy has $2000 in a bank account that has been giving him 3% interest compounded quarterly. How much money was in his account when he opened it 5 years ago?

_____

3. *Plugging in values for t was easy, but solving for t required looking at logarithms.* Find the following if possible.

(a) $\log_7 49$ (b) $\log(1000)$ (c) $\log_2\left(\frac{1}{8}\right)$ (d) $\log_3\left(\sqrt{3}\right)$

_____ _____ _____ _____

(e) $\log_4(-16)$ (f) $\log_2\left(64\cdot 8\cdot 32\sqrt{2}\right)$ (g) $\log_3\left(81^{100}\right)$ (c) $\log_2\left(\frac{64}{\sqrt{8}}\right)$

_____ _____ _____ _____

4. As we were reminded of above, logarithms have 3 nifty properties.

- $\log_a(x\cdot y)=$
- $\log_a\left(x^k\right)=$
- $\log_a\left(\frac{x}{y}\right)=$

5. *We solved logarithmic equations.* Solve each below. If needed round answers to two decimals.

(a) $\log_2(x-5)=4$ (b) $4-2\log(4x)=-2$

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6. *We used logarithms to solve exponential equations, which allowed us to solve for time in all those word problems.*

(a) Solve $\left(\frac{2}{3}\right)^x - 1000 = 500$

(b) Find $\log_3 947$

_____ _____

7. *We used these equation solving strategies also to find inverses of logarithmic and exponential functions.*
Find the inverse of…

(a) $y = 5^x - 12$

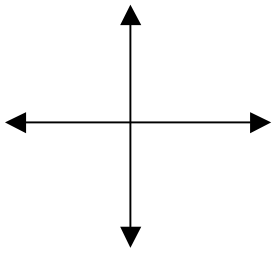
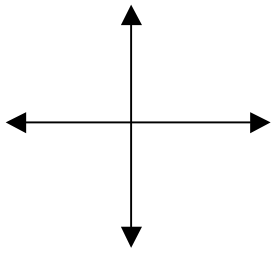
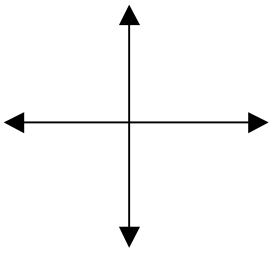
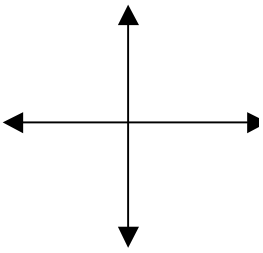
(b) $y = \log_2(x-3) + 7$

_____ _____

- *We looked at the graphs of exponentials and logarithms, and moved them around a bit.*6

8. Sketch the following. Identify their asymptotes, domain and range.

(a) $y = 5^x$ (b) $y = (\frac{2}{3})^x - 2$ (c) $y = \log_2 x$ (d) $y = \log_3(x-1)$

Asymptote _____ Asymptote _____ Asymptote _____ Asymptote _____

Domain _____ Domain _____ Domain _____ Domain _____

Range _____ Range _____ Range _____ Range _____