NO CALC

A2H review

Evaluate

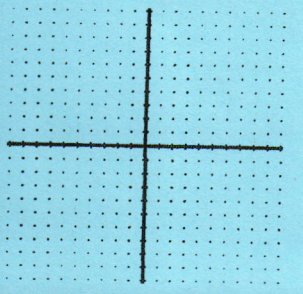
1. $\log_3 1^2$
2. $\log_3 27$
3. $\log_x x^5$
4. $3^{\log_3 7}$
5. $\log_2 \frac{1}{8}$

Growth or decay?

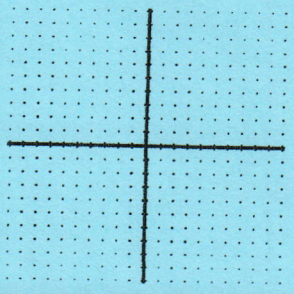
6. $y = 2 \cdot 3^x$
7. $y = 2 \cdot \frac{1}{3}^x$
8. $y = 2 \cdot 3^{-x}$
9. $y = 2 \cdot \frac{1}{3}^{-x}$
10. $y = 2 \cdot e^{-4x}$

Graph the following. Make sue to label your points and the asymptote

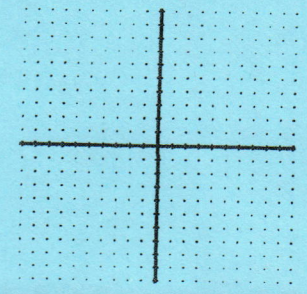
6. $y = 8 \cdot \frac{1}{2}^{x-4} + 1$



8. $y = 6 \cdot 3^{-x} - 9$



10. $y = 2 \cdot 2^{x-1} - 5$



OK, now you can use your calculator

You have $10,000 in a mutual fund that earns 4% annual interest. How much money…

1. **…would you have in 4 years?**
2. **…would you have in 4 years if it is compounded quarterly?**
3. **...would you have in 4 years if it is compounded monthly?**
4. **...would you have in 4 years if it is compounded continuously?**

Your $4,000 used '91 blue "Chevy Astro" depreciates at a rate of 18% per year.

5. **How much will it be worth in 5 years?**
6. **How long before it is worth $800?**

Find the Inverse

7. $y = \log_4 x$

8. $y = \log_{23}(x+2)$

9. $y = \ln(x-4)$

Simplify

10. $(3e^{-7})^2$

11. $e^{108}e^{-4}$

12. $\dfrac{21e^{52}}{28e^{-16}}$

EXPAND:

13. $\log_4 \dfrac{16x^9}{y}$

14. $\ln x^2 2^{\frac{3}{4}}$

15. $\log_{23} \dfrac{a^5}{8b^{23}}$

16. $\log_2 5x^3$

CONDEDNSE:

17. $4\log_7 x - \log_7 y$

18. $8\ln x + \ln 5x - 3\ln x$

19. $\log_5 3 - 2(\log_5 10 - \log_5 7)$

SOLVE:

20. $3^x - 3 = 50$

21. $\ln(x+2) = 6$

22. $\log(3x-8) = \log(2x+5)$

23. $\log_6 3x + \log_6(x+5) = 2$

NO CALC

A2H review

Evaluate

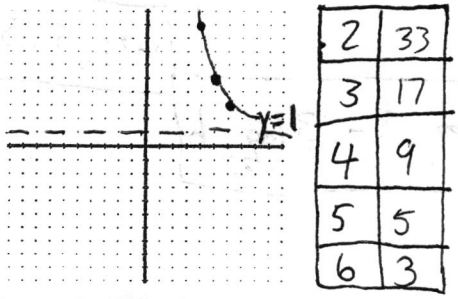
1. $\log_3 1^2$ — $\log_3 1$ — 0
2. $\log_3 27$ — 3
3. $\log_x x^5$ — 5
4. $3^{\log_3 7}$ — 7
5. $\log_2 \frac{1}{8}$ — −3

Growth or decay?

6. $y = 2 \cdot 3^x$ — Growth
7. $y = 2 \cdot \frac{1}{3}^x$ — Decay
8. $y = 2 \cdot 3^{-x}$ — Decay
9. $y = 2 \cdot \frac{1}{3}^{-x}$ — Growth
10. $y = 2 \cdot e^{-4x}$ — Decay

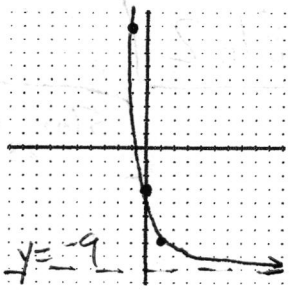
Graph the following. Make sue to label your points and the asymptote

6. $y = 8 \cdot \frac{1}{2}^{x-4} + 1$



2	33
3	17
4	9
5	5
6	3

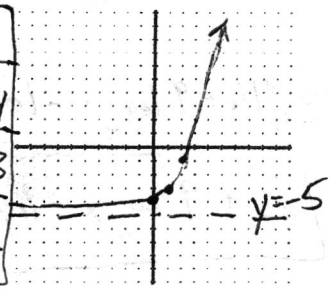
8. $y = 6 \cdot 3^{-x} - 9$



-2	45
-1	9
0	-3
1	-7
2	

10. $y = 2 \cdot 2^{x-1} - 5$

-1	
0	-4
1	-3
2	-1
3	3



OK, now you can use your calculator

You have $10,000 in a mutual fund that earns 4% annual interest. How much money…

1. **…would you have in 4 years?** $10{,}000(1+.04)^4 =$ — $11,698.59
2. **…would you have in 4 years if it is compounded quarterly?** $10{,}000\left(1+\frac{.04}{4}\right)^{4\cdot 4} =$ — $11,725.79
3. **...would you have in 4 years if it is compounded monthly?** $10{,}000\left(1+\frac{.04}{12}\right)^{4\cdot 12} =$ — $11,731.99
4. **...would you have in 4 years if it is compounded continuously?** $10{,}000e^{.04\cdot 4} =$ — $11,735.11

Your $4,000 used '91 blue "Chevy Astro" depreciates at a rate of 18% per year.

5. **How much will it be worth in 5 years?** $4{,}000(1-.18)^5 =$ $1,482.96
6. **How long before it is worth $800?** $800 = 4{,}000(1-.18)^x$ $\quad y = 4{,}000(1-.18)^x \rightarrow$ 8-9 years

Find the Inverse

7. $y = \log_4 x$

$x = \log_4 y$

$4^x = y$ → $y = 4^x$

8. $y = \log_{23}(x+2)$

$x = \log_{23}(y+2)$

$23^x = y+2$

$y = 23^x - 2$

9. $y = \ln(x-4)$

$x = \ln(y-4)$

$e^x = y-4$

$y = e^x + 4$

Simplify

10. $(3e^{-7})^2$

$3^2 e^{-14}$

$9e^{-14}$

$\frac{9}{e^{14}}$

11. $e^{108}e^{-4}$

e^{104}

12. $\frac{21e^{52}}{28e^{-16}}$

$\frac{3e^{52}\cdot e^{16}}{4} = \frac{3e^{68}}{4}$

EXPAND:

13. $\log_4 \frac{16x^9}{y}$

$\log_4 16 + 9\log_4 x - \log_4 y$

$2 + 9\log_4 x - \log_4 y$

14. $\ln x^2 2^{\frac{3}{4}}$

$2\ln x + \frac{3}{4}\ln 2$

15. $\log_{23} \frac{a^5}{8b^{23}}$

$5\log_{23} a - \log_{23} 8 - 23\log_{23} b$

16. $\log_2 5x^3$

$\log_2 5 + 3\log_2 x$

CONDEDNSE:

17. $4\log_7 x - \log_7 y$

$\log_7 \frac{x^4}{y}$

18. $8\ln x + \ln 5x - 3\ln x$

$\ln \frac{x^8 \cdot 5x}{x^3} = \ln \frac{5x^9}{x^3}$

$\ln 5x^6$

19. $\log_5 3 - 2(\log_5 10 - \log_5 7)$

$\log_5 3 - 2\log_5 10 + 2\log_5 7$

$\log_5 \frac{147}{100}$

$\log_5 \frac{37^2}{10^2}$ = $\log_5 \frac{3}{4900}$

SOLVE:

20. $3^x - 3 = 50$

$3^x = 53$

$x \log_3 3 = \log_3 53$

$x = 3.614$

21. $\ln(x+2) = 6$

$e^6 = x+2$

$x = e^6 - 2$

or

$= 401.429$

22. $\log(3x-8) = \log(2x+5)$

$3x - 8 = 2x + 5$

$x = 13$

23. $\log_6 3x + \log_6(x+5) = 2$

$\log_6(3x^2+15x) = 2$

$6^2 = 3x^2+15x \rightarrow 3x^2+15x-36=0 \rightarrow x^2+5x-12=0$ $x = -6.77, 1.77$