

Algebra 2 - Classwork April 28, 2014 - Review

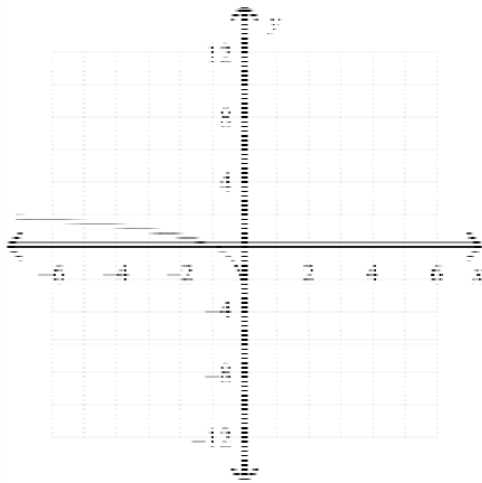
_____ 1. Credit card A is running a promotion where they will charge 0% interest for the first year, and then 0.8% compounded continuously after that. Credit card B has an interest rate of 0.7%, also compounded continuously. If you are going to make a \$500 purchase and plan to not make a single payment for 2.5 years, which credit card should you go with? Write the equation showing the total balance at the end of 2.5 years for that card.

- a. Card B, $\$508.83 = 500 \cdot e^{(0.007 * 2.5)}$
- b. Card B, $\$2,877.30 = 500 \cdot e^{(0.7 * 2.5)}$
- c. Card A, $\$506.04 = 500 \cdot e^{(0.008 * (2.5 - 1))}$
- d. Card A, $\$514.20 = 500 \cdot e^{(0.8 * 2.5 + 1)}$

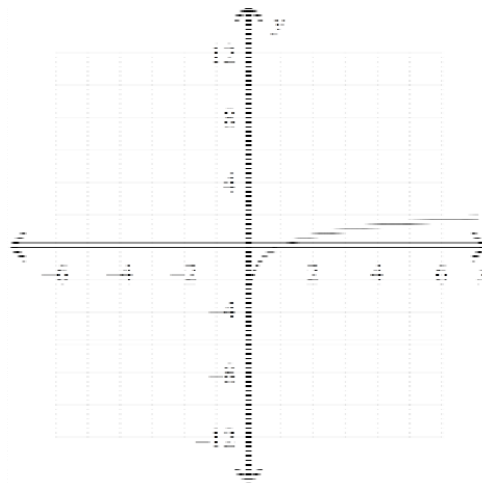
Graph the logarithmic equation.

_____ 2. $y = \log_3 x$

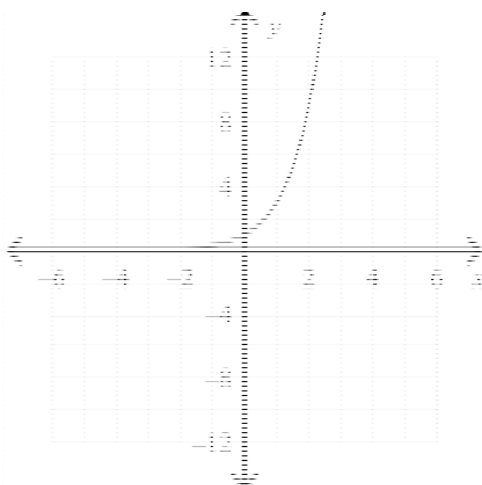
a.



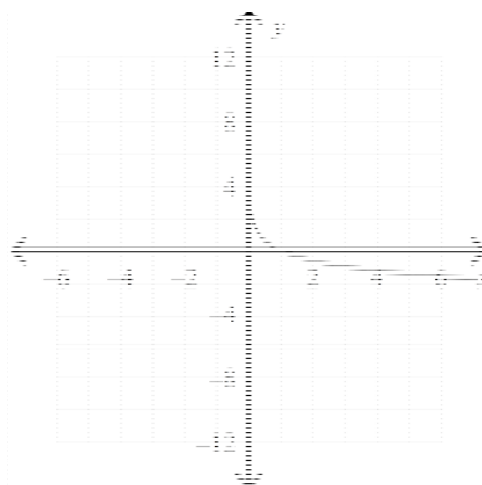
c.



b.

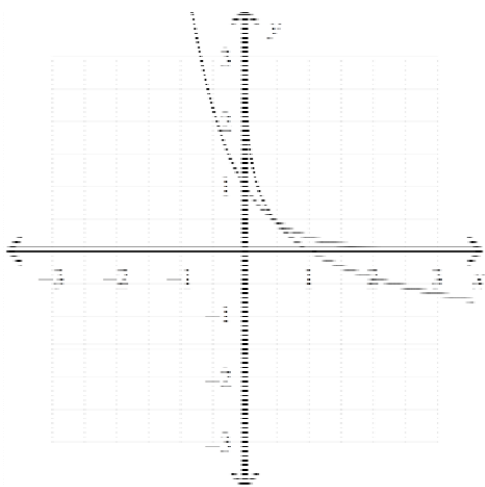


d.

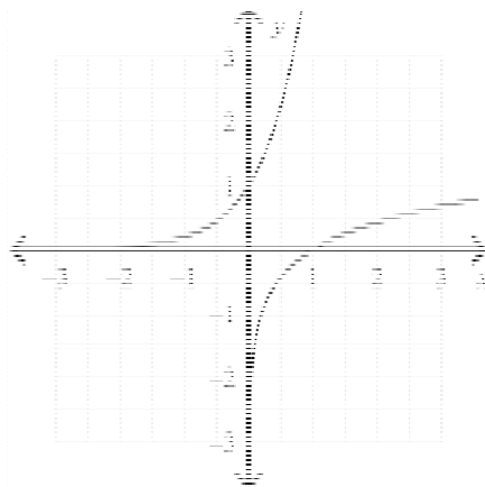


_____ 3. Graph $y = \log_5 x$ and its inverse.

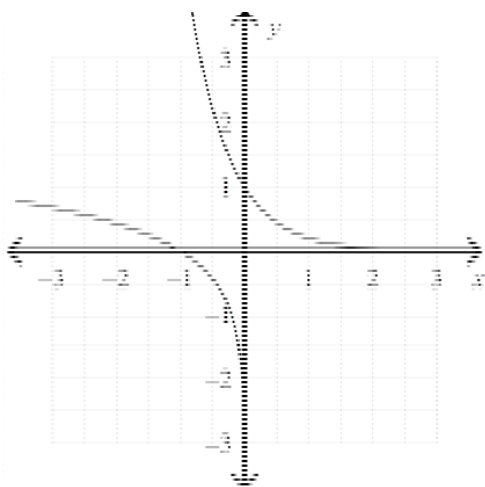
a.



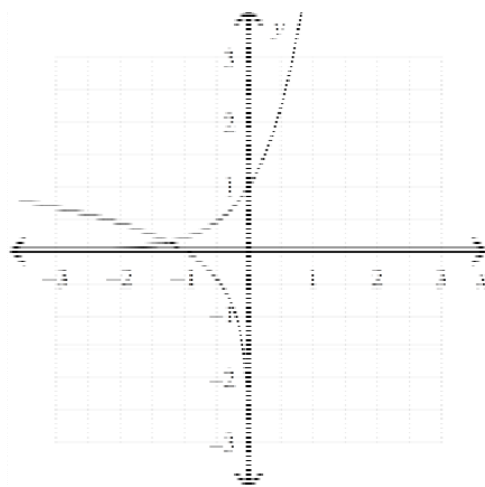
c.



b.



d.



Write the expression as a single logarithm.

_____ 4. $\log_7 50 - \log_7 5$

a. $\log_7 45$

b. $\log_7 45$

c. $\log_7 10$

d. $\log 10$

_____ 5. $4 \log x - 6 \log (x + 2)$

a. $24 \log \frac{x}{x + 2}$

c. $\log x(x + 2)^{24}$

b. $\log x^4(x + 2)^6$

d. none of these

Expand the logarithmic expression.

_____ 6. $\log_3 \frac{d}{12}$

a. $\log_3 d - \log_3 12$

b. $-d \log_3 12$

c. $\frac{\log_3 d}{\log_3 12}$

d. $\log_3 12 - \log_3 d$

_____ 7. $\log_3 11p^3$

a. $\log_3 11 \cdot 3 \log_3 p$

b. $\log_3 11 - 3 \log_3 p$

c. $\log_3 11 + 3 \log_3 p$

d. $11 \log_3 p^3$

_____ 8. $\log_b \sqrt{\frac{57}{74}}$

a. $\frac{1}{2} \log_b 57 + \frac{1}{2} \log_b 74$

b. $\frac{1}{2} \log_b 57 - \frac{1}{2} \log_b 74$

c. $\sqrt{\log_b 57 - \log_b 74}$

d. $\log_b \frac{1}{2} (57 - 74)$

_____ 9. Use the Change of Base Formula to evaluate $\log_3 91$.

a. 4.106

b. 1.959

c. 4.511

d. 1.504

_____ 10. What is the value of $\log_{81} 3$?

a. 3

b. $\frac{1}{4}$

c. 4

d. $\frac{1}{3}$

Solve the logarithmic equation. Round to the nearest ten-thousandth if necessary.

_____ 11. $\log(x + 9) - \log x = 3$

a. 0.0090

b. 0.3103

c. 3.2222

d. 111

_____ 12. $2 \log 4 - \log 3 + 2 \log x - 4 = 0$

a. 12.3308

b. 43.3013

c. 86.6025

d. 1875

Write the expression as a single natural logarithm.

_____ 13. $3 \ln 3 + 3 \ln c$

a. $\ln(27 + c^3)$

b. $\ln 9c^3$

c. $\ln 27c$

d. $\ln 27c^3$

_____ 14. $3 \ln x - 2 \ln c$

a. $\ln \frac{x^3}{c^2}$

b. $\ln(x^3 + c^2)$

c. $\ln(x^3 - c^2)$

d. $\ln x^3 c^2$

- _____ 15. $3 \ln a - \frac{1}{2} (\ln b + \ln c^2)$
a. $\ln \frac{3a}{0.5bc^2}$ b. $\frac{3}{2} \ln \frac{a}{bc^2}$ c. $\ln \frac{a^3}{bc}$ d. $\ln \frac{a^3}{c\sqrt{b}}$
- _____ 16. Solve $\ln(2x - 1) = 8$. Round to the nearest thousandth.
a. 1,489.979 b. 2,979.958 c. 2,981.458 d. 1,490.979
- _____ 17. Solve $\ln 2 + \ln x = 5$. Round to the nearest tenth, if necessary.
a. 50,000 b. 74.2 c. 10 d. 3
- _____ 18. Solve $\ln x - \ln 6 = 0$.
a. 6 b. $6e$ c. e^6 d. $\ln 6$

Use natural logarithms to solve the equation. Round to the nearest thousandth.

- _____ 19. $8e^{4x+8} = 15$
a. -0.033 b. 0.264 c. -1.843 d. 2.157
- _____ 20. $e^{2x} = 1.4$
a. -1.664 b. 0.073 c. 0.168 d. 0.190