Name: _____ Class: _____ Date: _____ ID: A

Algebra 2 Partner Test Chapter 7

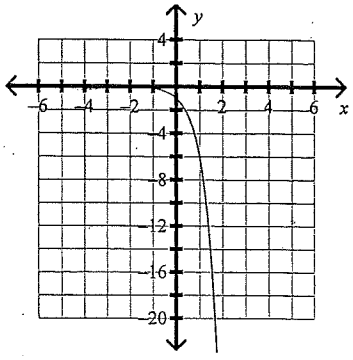
Multiple Choice
Identify the choice that best completes the statement or answers the question.

Graph the exponential function.

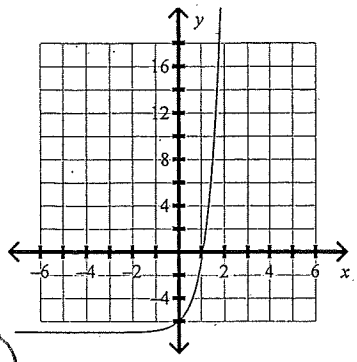
x	y
-1	1/6
0	1
1	6
2	36

___ 1. $y = 6^x$

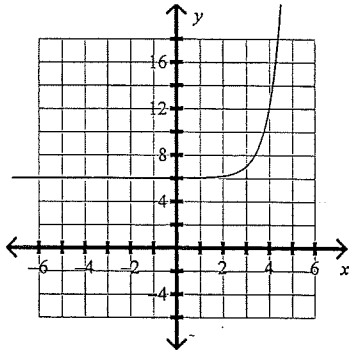
a.



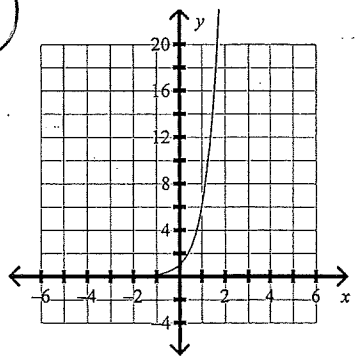
c.



b.

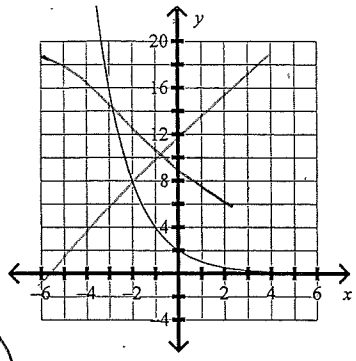


d.

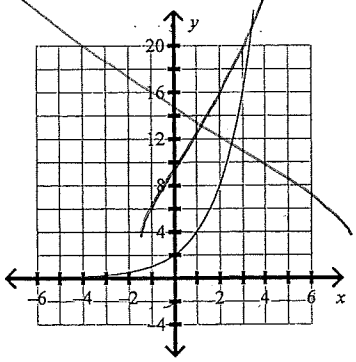


___ 2. $y = 5(2)^x$

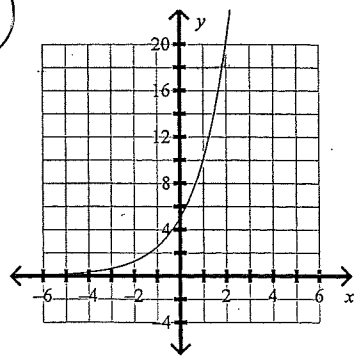
a.



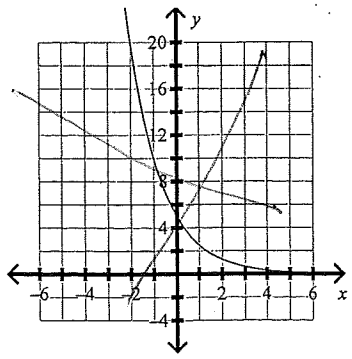
c.



b.



d.



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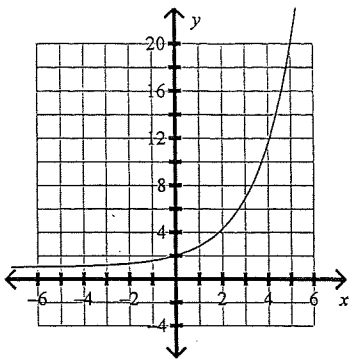
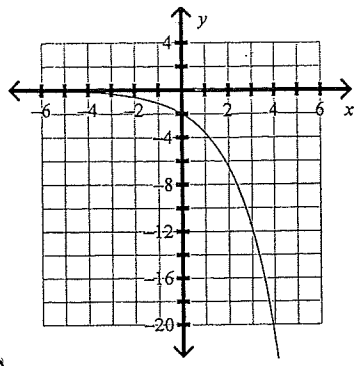
___ 3. $y = 2(1.8)^x$

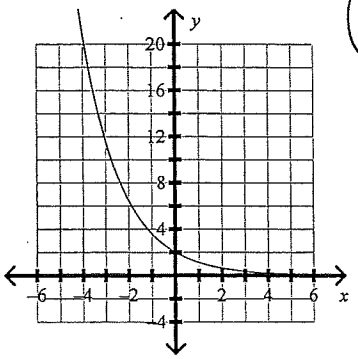
a.



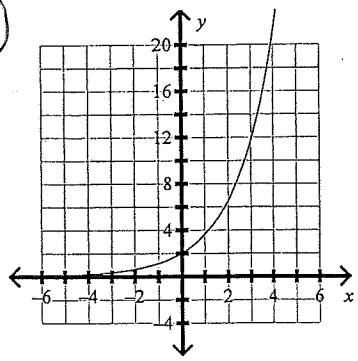
c.



b.



d.



___ 4. Find the annual percent increase or decrease that $y = 0.35(2.3)^x$ models.

a. 230% increase
b. 130% increase
c. 30% decrease
d. 65% decrease

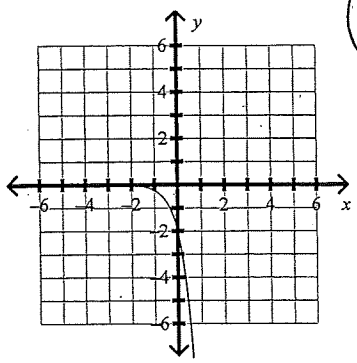
___ 5. An initial population of 385 quail increases at an annual rate of 28%. Write an exponential function to model the quail population. What will the approximate population be after 4 years?

a. $f(x) = 385(0.28)^x$; 1033
b. $f(x) = (385 \cdot 0.28)^x$; 135,043,922
c. $f(x) = 385(28)^x$; 236,642,560
d. $f(x) = 385(1.28)^x$; 1033

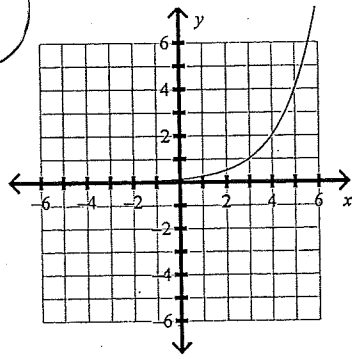
Graph the function.

___ 6. $y = \frac{1}{8}(2)^x$

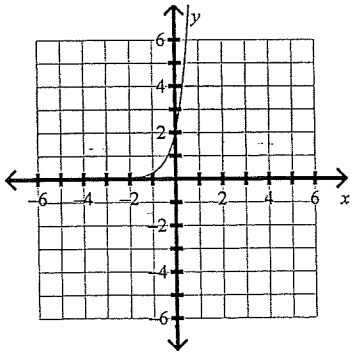
a.



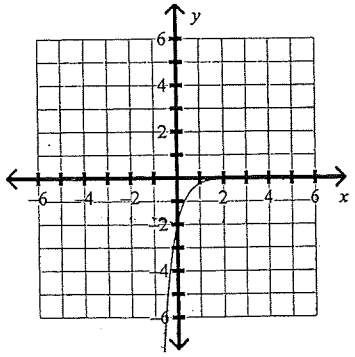
c.



b.



d.



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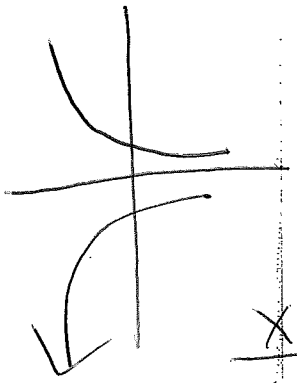
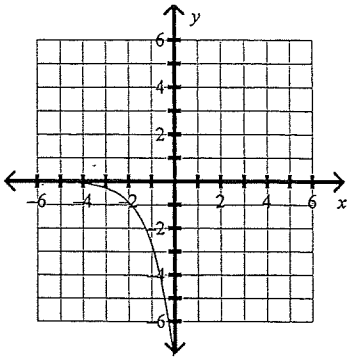


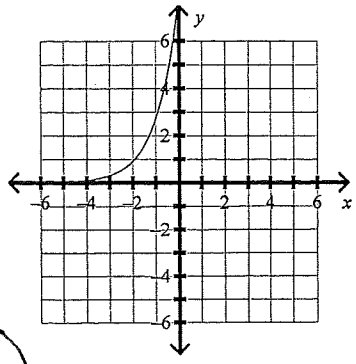
x	y
-1	3
0	1
1	1/3
2	1/9

___ 7. $y = -8\left(\frac{1}{3}\right)^x$

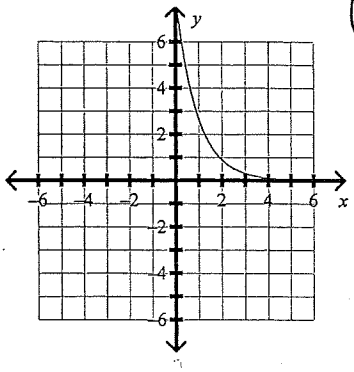
a.



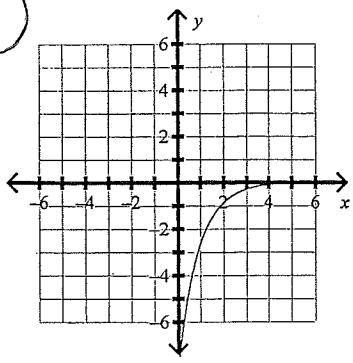
c.

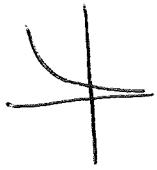


b.



d.



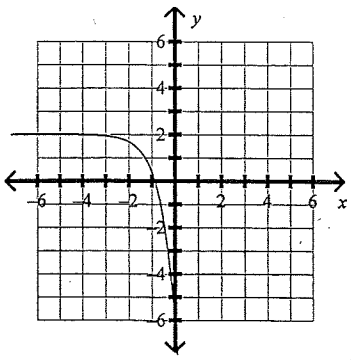


___ 8. $y = 8\left(\frac{1}{5}\right)^x + 2$

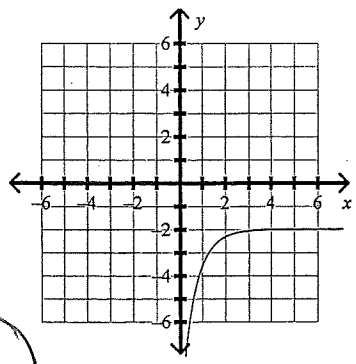
$y = \frac{1}{5}^x$

x	y
-1	5
0	1
1	1/5
2	1/25

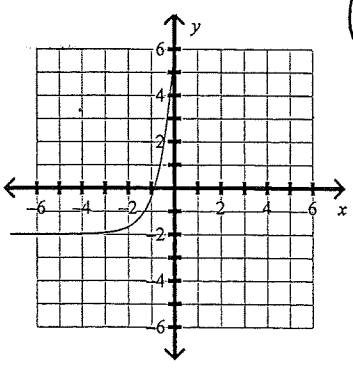
a.



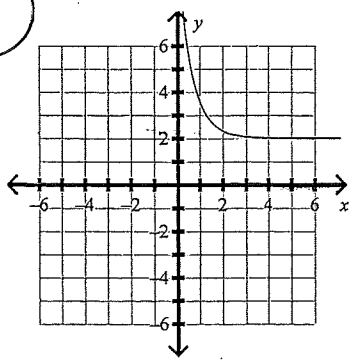
c.



b.



d.



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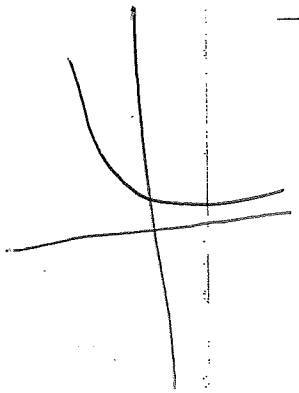
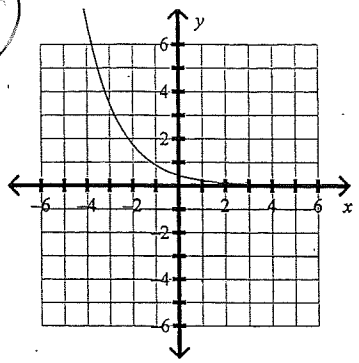
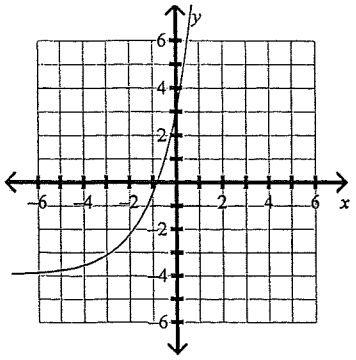
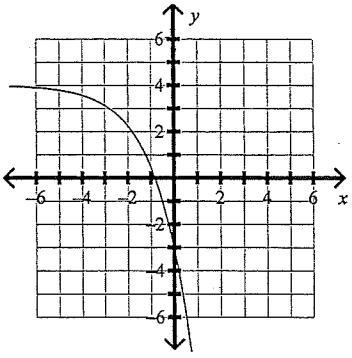
4 left

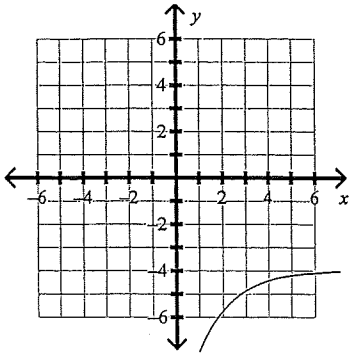


9. $y = 7\left(\frac{1}{2}\right)^{x+4}$

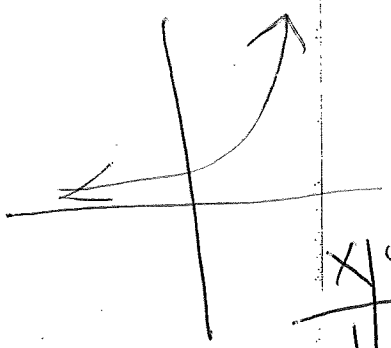
a.


c.


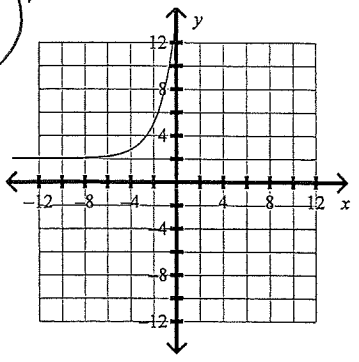
b.


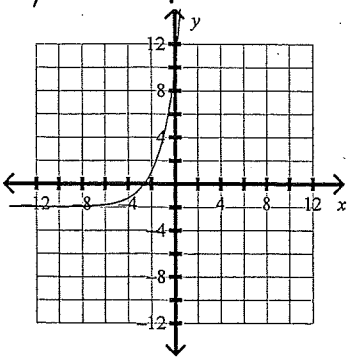
d.


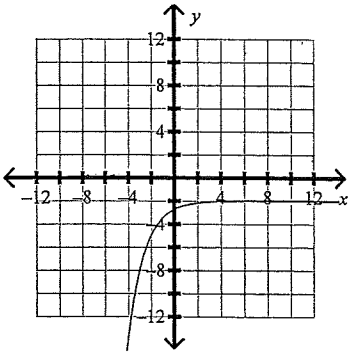
2 left, 2 up

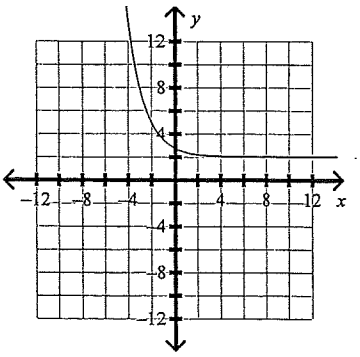


10. $y = 3(2)^{x+2} + 2$

a.


c.


b.


d.


x	y
-1	1/2
0	1
1	2
2	4

$820 = Pe^{(05)(3)}$

$\frac{820}{e^{(.05 \cdot 3)}}$

$e \wedge (1.4)$

11. Use the graph of $y = e^x$ to evaluate $e^{1.4}$ to four decimal places.
a. 4.0552 b. 2.7183 c. 3.8056 d. 0.2466

12. Use the table feature on a graphing calculator to evaluate $e^{1.4}$ to four decimal places.
a. 2.7183 b. 4.0552 c. 3.8056 d. 0.2466

$A = Pe^{rt}$

$1900 \cdot e^{(.058)(30)}$

13. Suppose you invest $1900 at an annual interest rate of 5.8% compounded continuously. How much will you have in the account after 30 years?
a. $8,986.64 b. $101,804.19 c. $10,824.95 d. $60,403.75

14. How much money invested at 5% compounded continuously for 3 years will yield $820?
a. $952.70 b. $818.84 c. $780.01 d. $705.78

$820 = Pe$

Name: _____ ID: A

Write the equation in logarithmic form.

___ 15. $7^3 = 343$ $\log_7 343 = 3$

a. $\log_7 343 = 3$
b. $\log 343 = 3$
c. $\log 343 = 3 \cdot 7$
d. $\log_3 343 = 7$

Evaluate the logarithm.

___ 16. $\log_5 \frac{1}{625}$ $\log 5$ □

a. 5
b. –3
c. 4
d. –4

___ 17. $\log_7 49 = x$

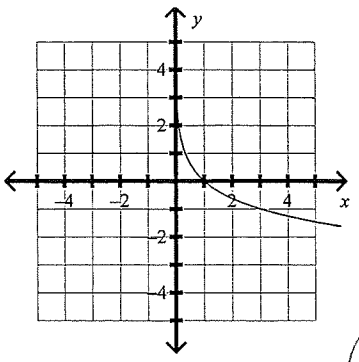
a. –2
b. 2
c. 7
d. 1

Graph the logarithmic equation.

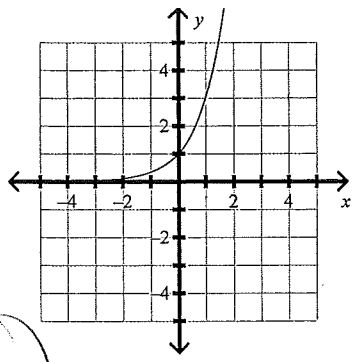
___ 18. $y = \log_3 x$

$3^y = x$

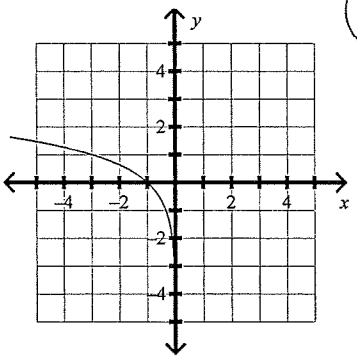
a.



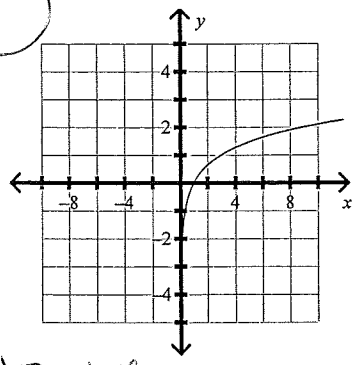
c.



b.



d.

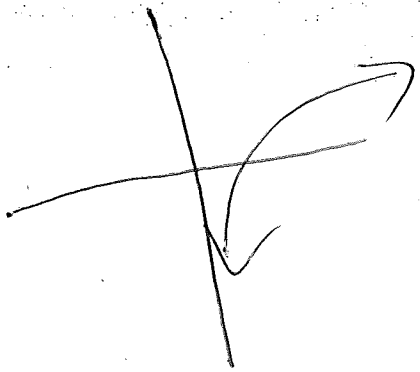


$y = 2\log_2(x-1) - 4$ ← y-4, ← add 1 to x value, ← y·2

$y = \log_2 x$

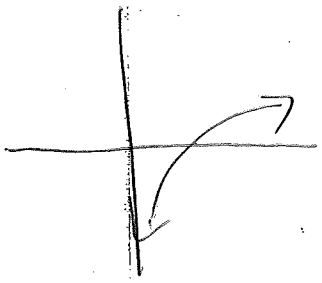
$2^y = x$

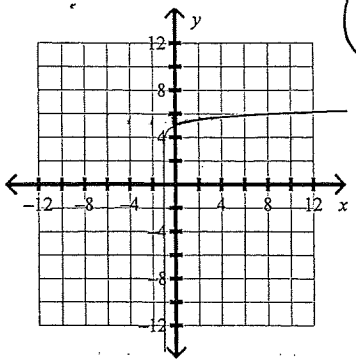
x	y
1/2	-1
1	0
2	1
4	2



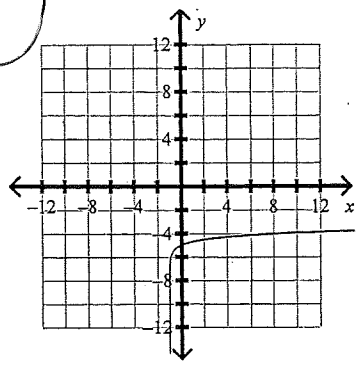
___ 19. $y = \log(x + 1) - 5$

a.

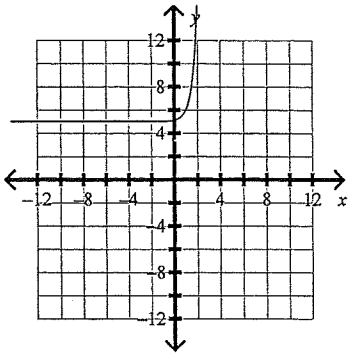




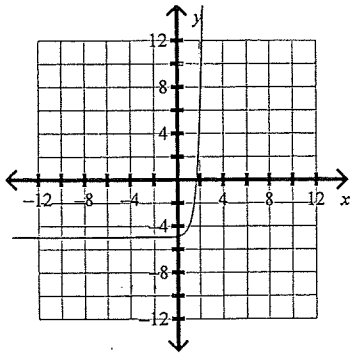
c.



b.



d.

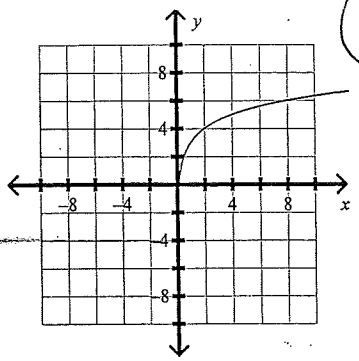


$2^y = x$

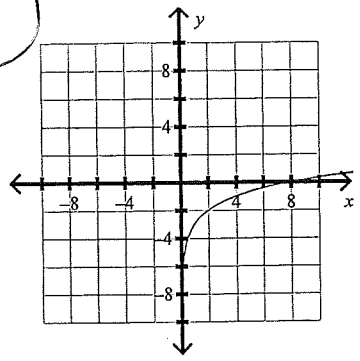
___ 20. $y = \log_2 x - 3$

x	y
1/2	-4
1	-3
2	-2
4	-1

a.



c.



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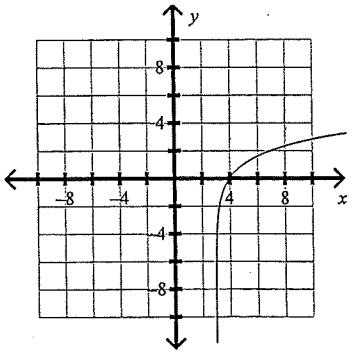
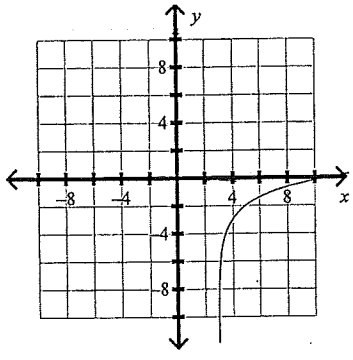


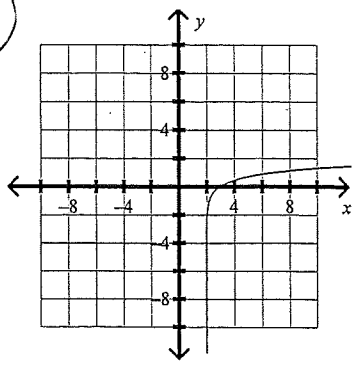
d.



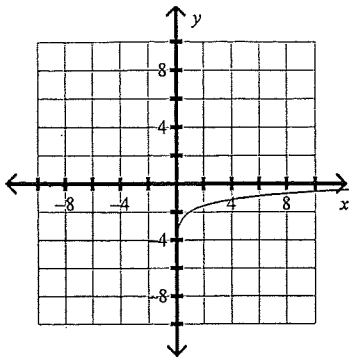
Name: _____ ID: A

___ 21. $y = \log_5(x - 2)$

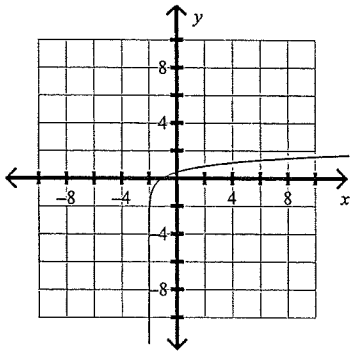
a.



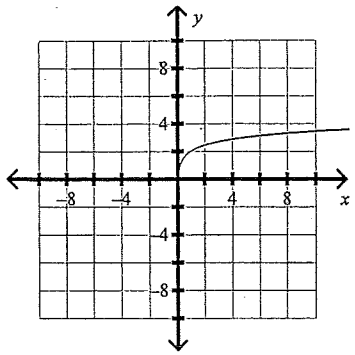
c.



b.



d.



Write the expression as a single logarithm.

___ 22. $6\log_b v + 3\log_b q$

a. $\log_b\left(v^6 + q^3\right)$

b. $\log_b(v^6 q^3)$

c. $\log_b\left(vq^{6+3}\right)$

d. $(6 + 3)\log_b(v + q)$

___ 23. $\log_5 54 - \log_5 9$

a. $\log 45$

b. $\log_5 45$

c. $\log_5 6$

d. $\log 6$

___ 24. $4\log x - 6\log(x + 2)$

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

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

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

d. none of these

Expand the logarithmic expression.

___ 25. $\log_5 \dfrac{k}{11}$

a. $\log_5 11 - \log_5 k$

b. $-k\log_5 11$

c. $\log_5 k - \log_5 11$

d. $\dfrac{\log_5 k}{\log_5 11}$

___ 26. $\log_8 6b^2$

a. $6\log_8 b^2$

b. $\log_8 6 - 2\log_8 b$

c. $\log_8 6 + 2\log_8 b$

d. $\log_8 6 \cdot 2\log_8 b$

___ 27. $\log_b \sqrt{\dfrac{57}{74}}$

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

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

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

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

___ 28. Use the Change of Base Formula to evaluate $\log_5 8$.

a. 1.292

b. 2.5

c. 2.079

d. 0.903

___ 29. Use the Change of Base Formula to evaluate $\log_9 36$.

a. 1.556

b. 2.549

c. 3.584

d. 1.631

___ 30. What is the value of $\log_{16} 4$?

a. 2 $16^x = 4$ c. $\frac{1}{2}$

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

Solve the exponential equation.

$8^{7x} = 4$

___ 31. $8^{7x} = 4$

a. $-\frac{4}{3}$ b. $\frac{10}{21}$ c. $\frac{2}{21}$ d. $\frac{21}{2}$

$(2^3)^{7x} = 2^2$

$21x = 2$

$x = 2/21$

___ 32. Solve $9^{5x} = 77$. Round to the nearest ten-thousandth.

a. 0.3954 b. 9.8848 c. 10.7329 d. 1.2283

Use a table to solve. Round to the nearest hundredth.

___ 33. $6^{3x} = 84$

a. 0.82 b. 7.92 c. 7.42 d. 2.25

$9^{5x} = 77$

$\log_9 77 = 5x$

$\log_3 1285 = 5x$

___ 34. Use a graphing calculator. Solve $3^{5x} = 1285$ by graphing. Round to the nearest hundredth.

a. 6.52 b. 3.11 c. 0.62 d. 1.30

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

$\log_6 84 = 3x$

___ 35. Solve $\log(5x + 14) = 1$.

$10^1 = 5x + 14$

$-4 = 5x$

a. -4 b. $-\frac{13}{5}$ c. $-\frac{4}{5}$ d. 2

___ 36. Solve $\log 3x + \log 12 = 1$. Round to the nearest hundredth if necessary.

a. 2.5 b. 360 c. 0.28 d. 40

$\log 36x = 1$

$\frac{10^1}{36} = \frac{36x}{36}$

$\frac{10}{36} = x$