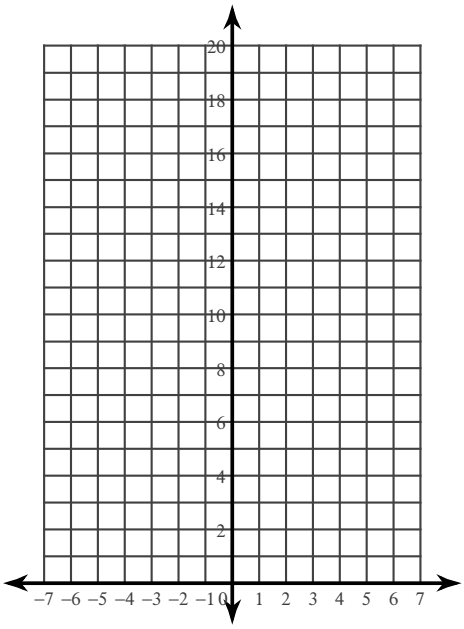
Algebra 2 Name_____

Chapter 8 Practice Test

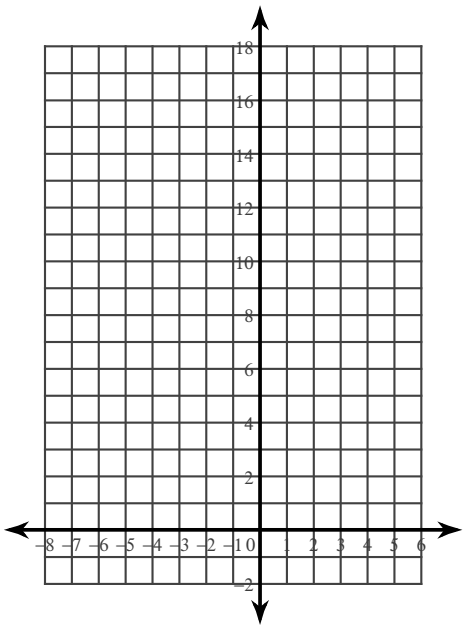
Date_____ Period____

Sketch the graph of each function.

1) $y = \frac{1}{4} \cdot 2^x + 2$



2) $y = 3 \cdot \left(\frac{1}{2}\right)^{x+1} - 2$



Evaluate each expression.

3) $\log_4 16$

4) $\log_7 49$

Rewrite each equation in exponential form.

5) $\log_x 31 = y$

6) $\log_{225} \frac{1}{15} = -\frac{1}{2}$

Rewrite each equation in logarithmic form.

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

8) $n^{-8} = 168$

Expand each logarithm.

9) $\log_5 \left(3 \cdot 2^2\right)^5$

10) $\log_3 \left(\frac{2^4}{11}\right)^6$

Condense each expression to a single logarithm.

11) $5\log_5 w + \dfrac{\log_5 u}{2}$

12) $2\log_8 u - 10\log_8 v$

Solve each equation.

13) $\log_{16}(-5k - 9) = \log_{16}(5 - 4k)$

14) $\log(72 - 3x) = \log(x^2 - 4x)$

15) $\log_{12} n = 1$

16) $\log r = -2$

17) $6\log_8 x = 12$

18) $5 + \log_{12} n = 6$

19) $\log_5 -10x - 5 = -4$

20) $3\log_7 (b + 4) - 7 = -1$

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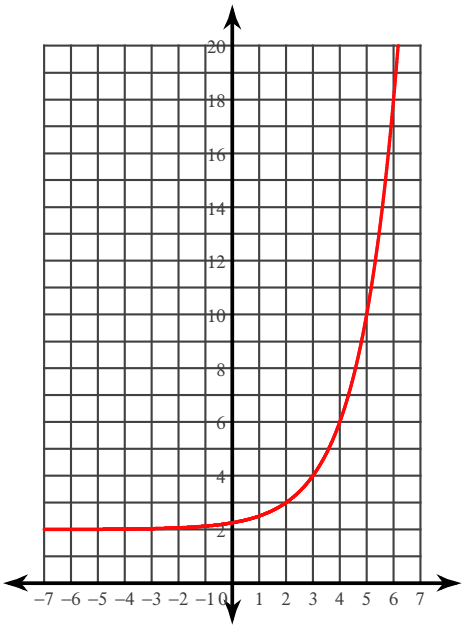
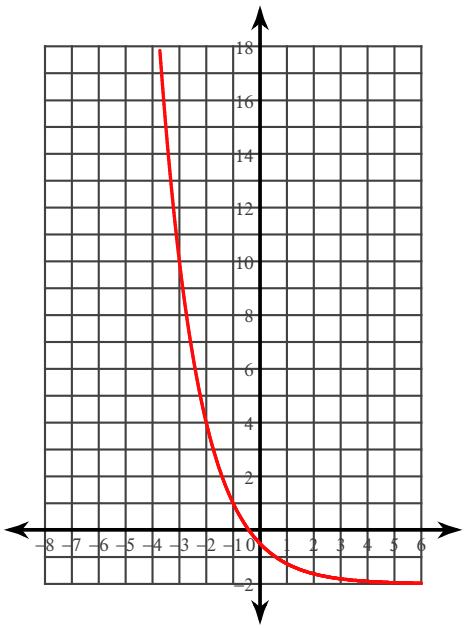


2) $y = 3 \cdot \left(\frac{1}{2}\right)^{x+1} - 2$



Evaluate each expression.

3) $\log_4 16$

2

4) $\log_7 49$

2

Rewrite each equation in exponential form.

5) $\log_x 31 = y$

$x^y = 31$

6) $\log_{225} \frac{1}{15} = -\frac{1}{2}$

$225^{-\frac{1}{2}} = \frac{1}{15}$

Rewrite each equation in logarithmic form.

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

$\log_{\frac{1}{2}} x = y$

8) $n^{-8} = 168$

$\log_n 168 = -8$

Expand each logarithm.

9) $\log_5 (3 \cdot 2^2)^5$

$5 \log_5 3 + 10 \log_5 2$

10) $\log_3 \left(\frac{2^4}{11}\right)^6$

$24 \log_3 2 - 6 \log_3 11$

Condense each expression to a single logarithm.

11) $5\log_5 w + \dfrac{\log_5 u}{2}$

$\log_5 \left(w^5\sqrt{u}\right)$

12) $2\log_8 u - 10\log_8 v$

$\log_8 \dfrac{u^2}{v^{10}}$

Solve each equation.

13) $\log_{16}(-5k - 9) = \log_{16}(5 - 4k)$

$\{-14\}$

14) $\log(72 - 3x) = \log(x^2 - 4x)$

$\{9, -8\}$

15) $\log_{12} n = 1$

$\{12\}$

16) $\log r = -2$ $\left\{\dfrac{1}{100}\right\}$

17) $6\log_8 x = 12$

{64}

18) $5 + \log_{12} n = 6$

{12}

19) $\log_5 -10x - 5 = -4$ $\left\{-\frac{1}{2}\right\}$

20) $3\log_7 (b + 4) - 7 = -1$

{45}