Algebra 2 Name_____

5.1-5.3 Quiz Review

Date_____ Period____

State whether the function is a growth or decay.

1) $y = -4 \cdot \left(\frac{1}{2}\right)^x$

2) $y = \frac{1}{3} \cdot 4^x$

3) $y = \frac{1}{2} \cdot \left(\frac{1}{4}\right)^x$

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

Evaluate each expression.

5) $\log_2 64$

6) $\log_7 343$

7) $\log_6 216$

8) $\log_4 \frac{1}{64}$

9) $\log_3 243$

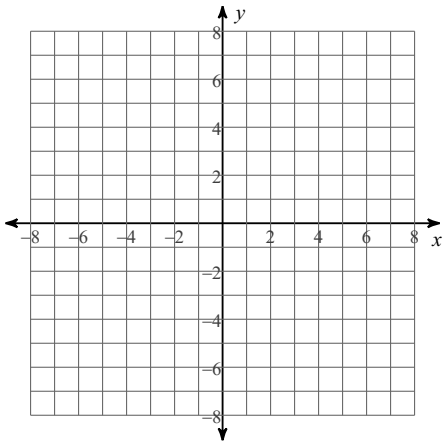
10) $\log_4 64$

11) $\log_2 \frac{1}{64}$

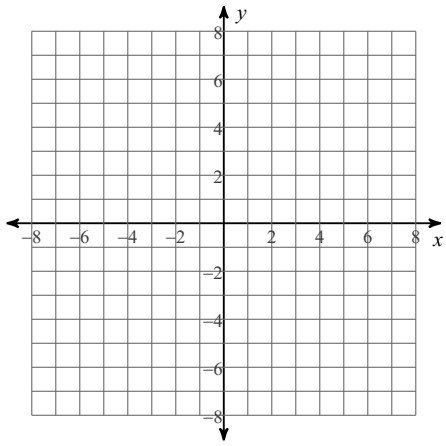
12) $\log_2 4$

Sketch the graph.

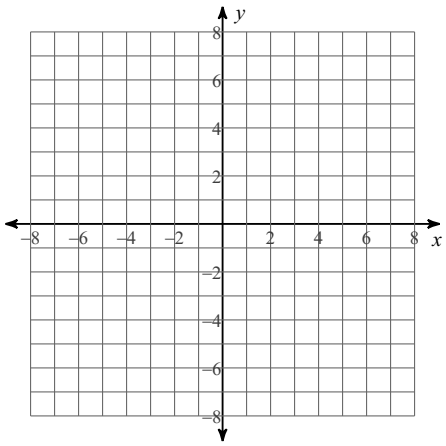
13) $y = \log_3 (x - 1) + 4$



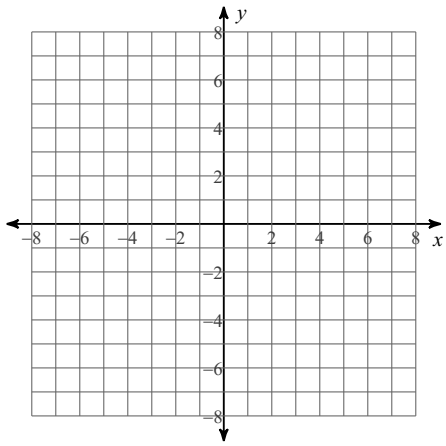
14) $y = \log_4 (x - 1) + 2$



15) $y = \log_6 (x + 1) + 4$



16) $y = \log_6 (x - 3) + 5$



Expand each logarithm.

17) $\log_2 \dfrac{10}{7^2}$

18) $\log_4 (6 \cdot 11 \cdot 7)$

19) $\log_8 \left(\dfrac{3}{10}\right)^6$

20) $\log_3 \sqrt[3]{12^3}$

21) $\log_3 (5 \cdot 6 \cdot 11^3)$

22) $\log_7 (5 \cdot 3 \cdot 8^5)$

Condense each expression to a single logarithm.

23) $\log_3 x - \log_3 y$

24) $6 \log_3 x$

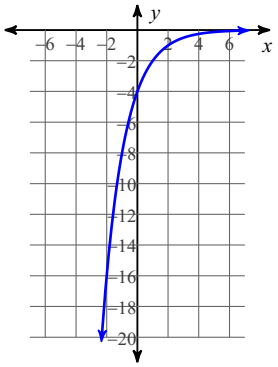
25) $\dfrac{\ln x}{2}$

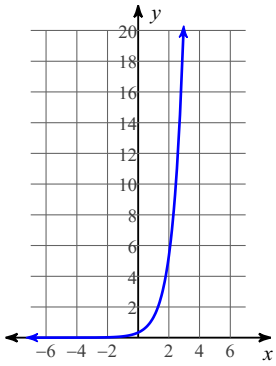
26) $\log_4 x - \log_4 y$

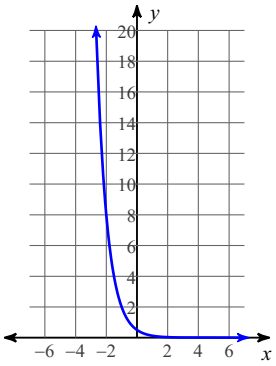
27) $5 \log_5 z + \dfrac{\log_5 x}{2}$

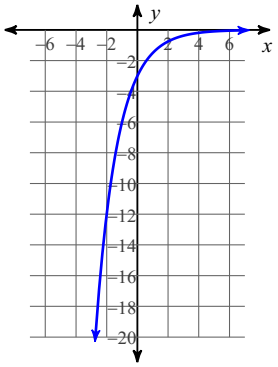
28) $4 \log 8 + 24 \log 7$

Answers to 5.1-5.3 Quiz Review

1) 

2) 

3) 

4) 

5) 6

6) 3

7) 3

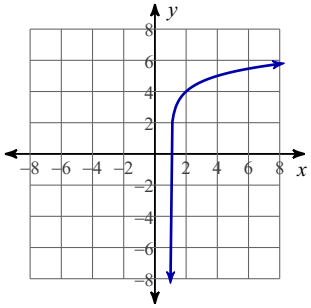
8) −3

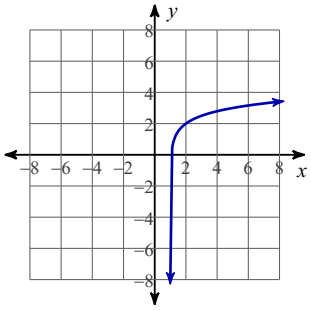
9) 5

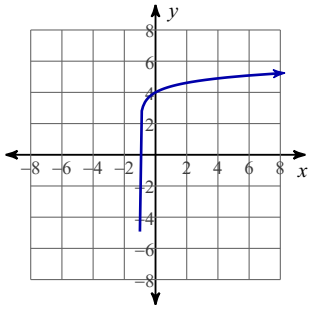
10) 3

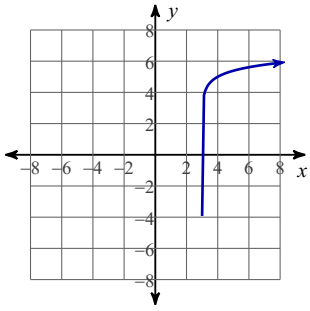
11) −6

12) 2

13) 

14) 

15) 

16) 

17) $\log_2 10 - 2\log_2 7$

18) $\log_4 6 + \log_4 11 + \log_4 7$

19) $6\log_8 3 - 6\log_8 10$

20) $\log_3 12$

21) $\log_3 5 + \log_3 6 + 3\log_3 11$

22) $\log_7 5 + \log_7 3 + 5\log_7 8$

23) $\log_3 \frac{x}{y}$

24) $\log_3 x^6$

25) $\ln \sqrt{x}$

26) $\log_4 \frac{x}{y}$

27) $\log_5 \left(z^5\sqrt{x}\right)$

28) $\log \left(7^{24} \cdot 8^4\right)$