

5.1-5.3 In Class Review

Date _____ Period _____

Evaluate each expression.

1) $\log_7 49$

2) $\log_7 1$

3) $\log_2 4$

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

5) $\log_3 \frac{1}{27}$

6) $\log_4 16$

7) $\log_2 \frac{1}{16}$

8) $\log_6 216$

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

10) $\log_2 8$

Rewrite each equation in exponential form.

11) $\log_{14} 1 = 0$

12) $\log_{16} 256 = 2$

13) $\log_{196} 14 = \frac{1}{2}$

14) $\log_{14} 196 = 2$

15) $\log_2 64 = 6$

Rewrite each equation in logarithmic form.

16) $3^4 = 81$

17) $18^2 = 324$

18) $16^2 = 256$

19) $12^2 = 144$

20) $8^2 = 64$

Expand each logarithm.

21) $\log_9 (x^5 y^3)$

22) $\log_6 (x^4 \cdot y)^5$

23) $\log_5 (w\sqrt[3]{u \cdot v})$

24) $\log_4 \frac{x^5}{y^6}$

25) $\log_5 (x^6 \cdot y)^4$

26) $\log_2 (z^4 \sqrt{x})$

27) $\log_8 \left(\frac{x}{y^6}\right)^2$

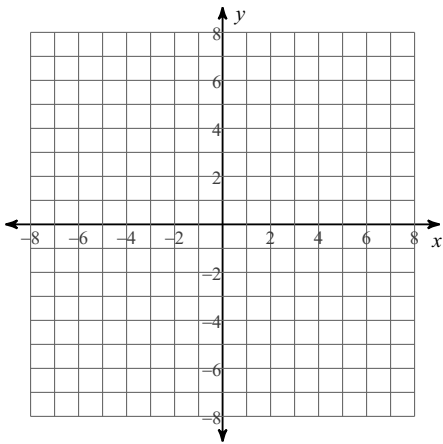
28) $\log_9 \left(\frac{x^4}{y}\right)^4$

29) $\log_9 \sqrt{x \cdot y \cdot z}$

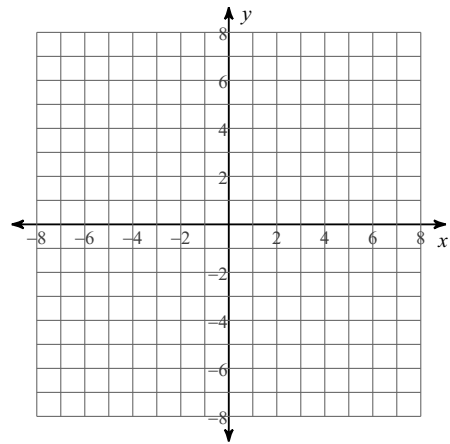
30) $\log_4 \left(\frac{a^5}{b}\right)^3$

Identify the domain and range of each. Then sketch the graph.

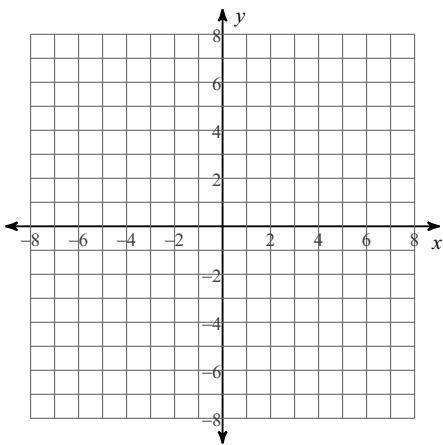
31) $y = \log(x + 2) - 5$



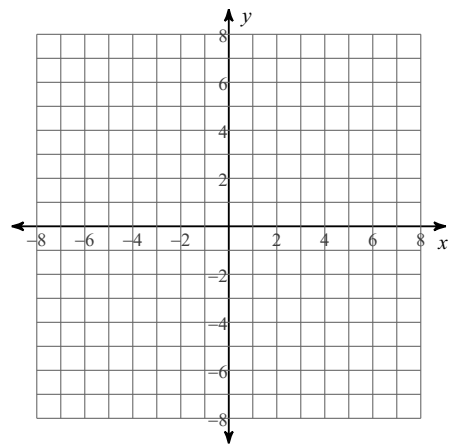
32) $y = \log(x + 4) - 2$



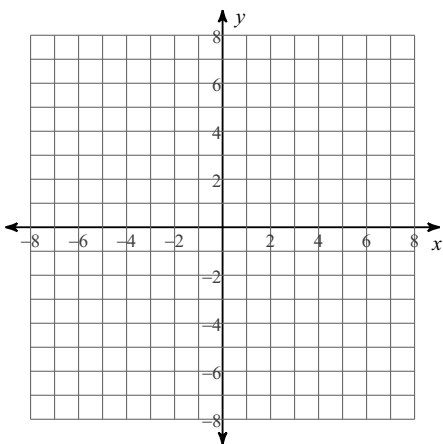
33) $y = \log(x + 3) + 3$



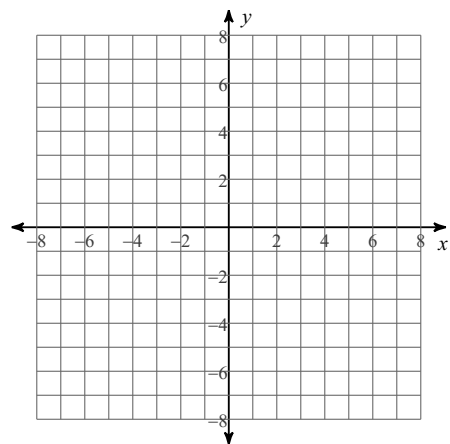
34) $y = \log(x + 5)$



35) $y = \log(x + 4) + 4$



36) $y = \log(x - 1) - 3$

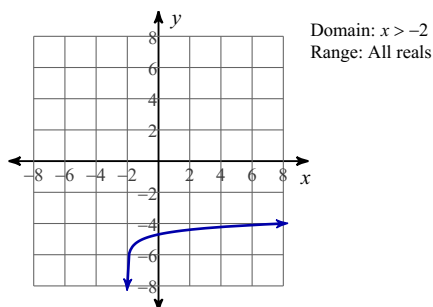


Answers to 5.1-5.3 In Class Review

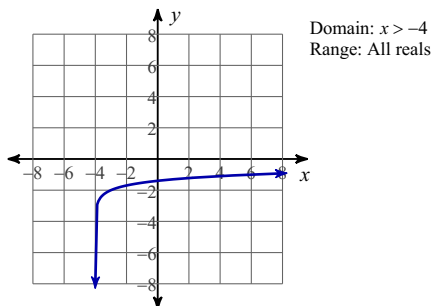
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|------------------------------|-------------------------|-------------------------|---------------------|
| 1) 2 | 2) 0 | 3) 2 | 4) -3 |
| 5) -3 | 6) 2 | 7) -4 | 8) 3 |
| 9) -6 | 10) 3 | 11) $14^0 = 1$ | 12) $16^2 = 256$ |
| 13) $196^{\frac{1}{2}} = 14$ | 14) $14^2 = 196$ | 15) $2^6 = 64$ | 16) $\log_3 81 = 4$ |
| 17) $\log_{18} 324 = 2$ | 18) $\log_{16} 256 = 2$ | 19) $\log_{12} 144 = 2$ | 20) $\log_8 64 = 2$ |

- | | | |
|--------------------------------|--------------------------------|--|
| 21) $5 \log_9 x + 3 \log_9 y$ | 22) $20 \log_6 x + 5 \log_6 y$ | 23) $\log_5 w + \frac{\log_5 u}{3} + \frac{\log_5 v}{3}$ |
| 24) $5 \log_4 x - 6 \log_4 y$ | 25) $24 \log_5 x + 4 \log_5 y$ | 26) $4 \log_2 z + \frac{\log_2 x}{2}$ |
| 27) $2 \log_8 x - 12 \log_8 y$ | 28) $16 \log_9 x - 4 \log_9 y$ | 29) $\frac{\log_9 x}{2} + \frac{\log_9 y}{2} + \frac{\log_9 z}{2}$ |

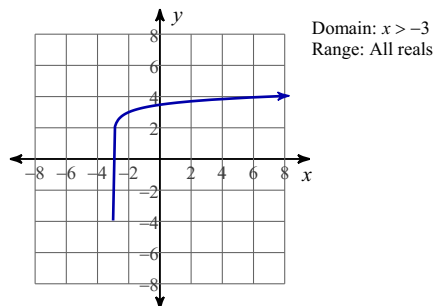
- 30) $15 \log_4 a - 3 \log_4 b$ 31)



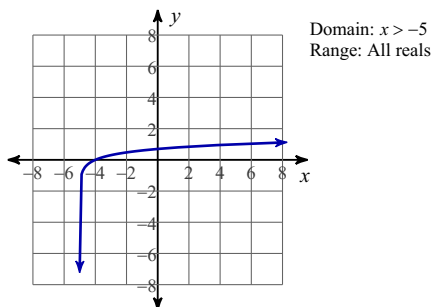
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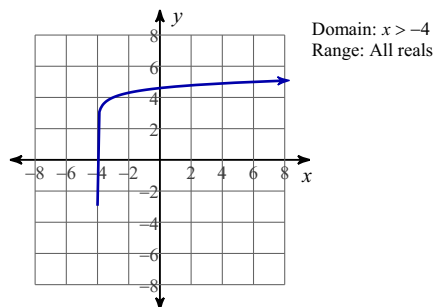
33)



34)



35)



36)

