

Semester 2 Review #1

Date _____ Period _____

Solve each equation.

1) $\left(\frac{1}{3}\right)^{2-2x} = \left(\frac{1}{27}\right)^{3x}$

2) $10^{9x} + 8 = 55$

3) $\log_{13}(-2a - 4) = \log_{13} 28$

4) $10 \log(x + 6) = 40$

5) $\log_8 4 - \log_8 4x = \log_8 37$

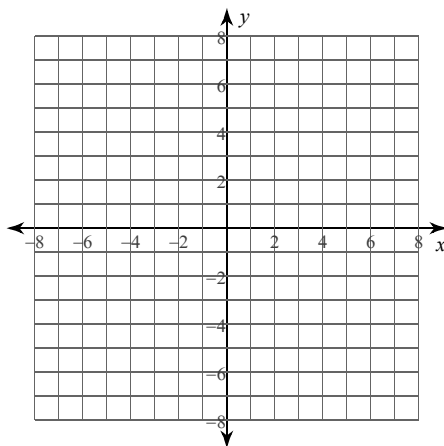
6) $6^{2n} \cdot 6^{-n} = 36$

7) $7 \cdot 5^{v-3} + 4 = 50$

8) $\log_9 5 + \log_9 5x^2 = 1$

Sketch the graph and state the domain and range.

9) $f(x) = \log_5(x - 1) - 4$

**Condense each expression to a single logarithm.**

10) $24 \log_2 u + 6 \log_2 v$

11) $2 \log x - 4 \log y$

Expand each logarithm.

12) $\log_8(x \cdot y \cdot z^5)$

13) $\log_4\left(\frac{x}{y^3}\right)^5$

Find the exact value of each trigonometric function.

14) $\cot \frac{7\pi}{4}$

15) $\csc 0$

16) $\cos \frac{7\pi}{6}$

17) $\cos -\pi$

18) $\sec \frac{\pi}{6}$

19) $\sin \frac{11\pi}{2}$

Answers to Semester 2 Review #1

1) $\left\{\frac{2}{11}\right\}$

2) $\frac{\log 47}{9}$

3) $\{-16\}$

4) $\{9994\}$

5) $\left\{\frac{1}{37}\right\}$

6) $\{2\}$

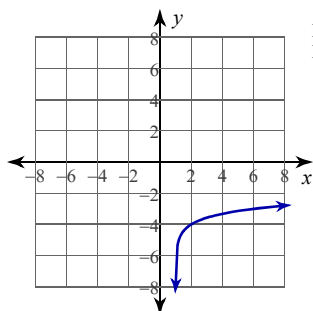
7) $\log_5 \frac{46}{7} + 3$

8) $\left\{\frac{3}{5}, -\frac{3}{5}\right\}$

9)

10) $\log_2 (v^6 u^{24})$

11) $\log \frac{x^2}{y^4}$



Domain: $x > 1$
Range: All reals

12) $\log_8 x + \log_8 y + 5 \log_8 z$

13) $5 \log_4 x - 15 \log_4 y$

14) -1

15) Undefined

16) $-\frac{\sqrt{3}}{2}$

17) -1

18) $\frac{2\sqrt{3}}{3}$

19) -1