

Ch. 9: NO CALCULATOR 😊

1. Re-write $5^2 = 25$ in logarithmic form.

$$\log_5 25 = 2$$

2. Evaluate $\log_{10} \frac{1}{1000}$.

$$\log_{10} \frac{1}{1000}$$

$$10^x = \frac{1}{1000}$$

$$x = -3$$

3. Evaluate $\log_2 64$.

$$2^x = 64$$

$$x = 6$$

4. Solve for x: $\log_x 16 = \frac{1}{2}$

$$(x^{\frac{1}{2}})^2 = (16)^2$$

$$x = 256$$

5. Solve for x: $3^{x+12} = \frac{1}{81}$

$$3^{x+12} = 3^{-4}$$

$$x+12 = -4$$

$$x = -16$$

6. Solve for x: $\log_3 21 - \log_3 7 = \log_3 (2x - 1)$

$$\log_3 \frac{21}{7} = \log_3 (2x - 1)$$

$$3 = 2x - 1$$

$$4 = 2x$$

$$x = 2$$

7. Rewrite $\log_x 24$ using $\log_x 2$ and $\log_x 3$.

$$\log_x 2^3 + \log_x 3$$

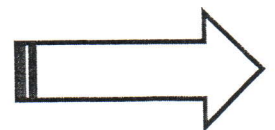
$$3 \log_x 2 + \log_x 3$$

8. For the graph of $y = 3(2)^x \dots$

$$y_{\text{int}} = a \rightarrow 3$$

a) y-intercept 3

b) Growth or Decay? growth



9. Re-write $6^{-2} = \frac{1}{36}$ in logarithmic form.

$$\log_6 \frac{1}{36} = -2$$

10. Evaluate $\log_{10} \frac{1}{10000}$.

$$\log_{10} \frac{1}{10000}$$
$$10^x = \frac{1}{10000}$$

$$x = -4$$

11. Evaluate $\log_3 81$.

$$3^x = 81$$

$$x = 4$$

12. Solve for x: $\log_x 4 = \frac{1}{4}$

$$\left(x^{\frac{1}{4}}\right)^4 = (4)^4$$

$$x = 256$$

13. Solve for x: $5^{x-6} = \frac{1}{625}$

$$5^{x-6} = 5^{-4}$$

$$x-6 = -4$$
$$+6 \quad +6$$
$$x = 2$$

14. Solve for x: $\log_3 28 - \log_3 7 = \log_3(x+3)$

$$\log_3 \frac{28}{7} = \log_3(x+3)$$

$$4 = x+3$$

$$x = 1$$

15. Rewrite $\log_x 36$ using $\log_x 2$ and $\log_x 3$.

$$\log_x 2^2 + \log_x 3^2$$

$$2\log_x 2 + 2\log_x 3$$

16. For the graph of $y = \frac{1}{4} \left(\frac{3}{2}\right)^x \dots$

y -int = a \rightarrow

a) y -intercept $\frac{1}{4}$

b) Growth or Decay? growth