

Name(s): KEY
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Work with partners in groups of 2-4. This is required.

1. Give the domain of $\log(x+1)$.

$$x+1 > 0$$

$$x > -1$$

$$D = \{x \mid x > -1\} = (-1, \infty)$$

2. Write $16 = 4^2$ as an equivalent expression involving logarithms.

$$16 = 4^2$$

$$\log_4 16 = 2$$

3. Write $\log_3\left(\frac{1}{9}\right) = -2$ as an equivalent expression involving exponentials.

$$\log_3\left(\frac{1}{9}\right) = -2$$

$$\frac{1}{9} = 3^{-2}$$

4. Solve $\log_x 4 = 2$.

$$\log_x 4 = 2$$

$$4 = x^2$$

$$x = \pm 2$$

$$\boxed{x = 2}$$

(bases cannot be negative)