Algebra: Log ↔ Exponential Conversion

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Name: _____ Date: _____ Score: / 10

DIRECTIONS *Convert between logarithmic form log_b(x)=y and exponential form b^y=x.*

1 Convert to logarithmic form:

$$4^3 = 64$$

Answer: _____

2 Convert to exponential form:

$$\log_3 27 = 3$$

Answer: _____

3 Convert to logarithmic form:

$$5^{-2} = \frac{1}{25}$$

Answer: _____

4 Convert to logarithmic form:

$$2^5 = 32$$

Answer: _____

5 Convert to logarithmic form:

$$3^4 = 81$$

Answer: _____

6 Convert to exponential form:

$$\log_2 8 = 3$$

Answer: _____

7 Convert to exponential form:

$$\log_5 125 = 3$$

Answer: _____

8 Convert to exponential form:

$$\log_4 16 = 2$$

Answer: _____

9 Convert to exponential form:

$$\log_7 49 = 2$$

Answer: _____

10 Convert to logarithmic form:

$$10^3 = 1000$$

Answer: _____

Answer Key & Solutions

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TEACHER NOTES *These two forms are inverses of each other. Practice going both directions fluently.*

1 Convert to logarithmic form:

= $\log_4 64 = 3$

$4^3 = 64$

2 Convert to exponential form:

= $3^3 = 27$

$\log_3 27 = 3$

3 Convert to logarithmic form:

= $\log_5 \frac{1}{25} = -2$

$5^{-2} = \frac{1}{25}$

4 Convert to logarithmic form:

= $\log_2 32 = 5$

$2^5 = 32$

5 Convert to logarithmic form:

= $\log_3 81 = 4$

$3^4 = 81$

6 Convert to exponential form:

= $2^3 = 8$

$\log_2 8 = 3$

7 Convert to exponential form:

= $5^3 = 125$

$\log_5 125 = 3$

8 Convert to exponential form:

= $4^2 = 16$

$\log_4 16 = 2$

9 Convert to exponential form:

= $7^2 = 49$

$\log_7 49 = 2$

10 Convert to logarithmic form:

= $\log_{10} 1000 = 3$

$10^3 = 1000$