

Exponential Equations ~~Not Requiring Logarithms~~

Date \_\_\_\_\_ Period \_\_\_\_\_

Solve each equation.

*by Matching Bases*

1)  $4^{2x+3} = 1$

2)  $5^{3-2x} = 5^{-x}$

3)  $3^{1-2x} = 243$

4)  $3^{2a} = 3^{-a}$

5)  $4^{3x-2} = 1$

6)  $4^{2p} = 4^{-2p-1}$

7)  $6^{-2a} = 6^{2-3a}$

8)  $2^{2x+2} = 2^{3x}$

9)  $6^{3m} \cdot 6^{-m} = 6^{-2m}$

10)  $\frac{2^x}{2^x} = 2^{-2x}$

11)  $10^{-3x} \cdot 10^x = \frac{1}{10}$

12)  $3^{-2x+1} \cdot 3^{-2x-3} = 3^{-x}$

$$13) 4^{-2x} \cdot 4^x = 64$$

$$14) 6^{-2x} \cdot 6^{-x} = \frac{1}{216}$$

$$15) 2^x \cdot \frac{1}{32} = 32$$

$$16) 2^{-3p} \cdot 2^{2p} = 2^{2p}$$

$$17) 64 \cdot 16^{-3x} = 16^{3x-2}$$

$$18) \frac{81^{3n+2}}{243^{-n}} = 3^4$$

$$19) 81 \cdot 9^{-2b-2} = 27$$

$$20) 9^{-3x} \cdot 9^x = 27$$

$$21) \left(\frac{1}{6}\right)^{3x+2} \cdot 216^{3x} = \frac{1}{216}$$

$$22) 243^{k+2} \cdot 9^{2k-1} = 9$$

$$23) 16^r \cdot 64^{3-3r} = 64$$

$$24) 16^{2p-3} \cdot 4^{-2p} = 2^4$$

## Exponential Equations Not Requiring Logarithms

Date \_\_\_\_\_ Period \_\_\_\_\_

Solve each equation.

1)  $4^{2x+3} = 1$

$$\left\{-\frac{3}{2}\right\}$$

2)  $5^{3-2x} = 5^{-x}$

$$\{3\}$$

3)  $3^{1-2x} = 243$

$$\{-2\}$$

4)  $3^{2a} = 3^{-a}$

$$\{0\}$$

5)  $4^{3x-2} = 1$

$$\left\{\frac{2}{3}\right\}$$

6)  $4^{2p} = 4^{-2p-1}$

$$\left\{-\frac{1}{4}\right\}$$

7)  $6^{-2a} = 6^{2-3a}$

$$\{2\}$$

8)  $2^{2x+2} = 2^{3x}$

$$\{2\}$$

9)  $6^{3m} \cdot 6^{-m} = 6^{-2m}$

$$\{0\}$$

10)  $\frac{2^x}{2^x} = 2^{-2x}$

$$\{0\}$$

11)  $10^{-3x} \cdot 10^x = \frac{1}{10}$

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

12)  $3^{-2x+1} \cdot 3^{-2x-3} = 3^{-x}$

$$\left\{-\frac{2}{3}\right\}$$

$$13) 4^{-2x} \cdot 4^x = 64$$

$$\{-3\}$$

$$14) 6^{-2x} \cdot 6^{-x} = \frac{1}{216}$$

$$\{1\}$$

$$15) 2^x \cdot \frac{1}{32} = 32$$

$$\{10\}$$

$$16) 2^{-3p} \cdot 2^{2p} = 2^{2p}$$

$$\{0\}$$

$$17) 64 \cdot 16^{-3x} = 16^{3x-2}$$

$$\left\{\frac{7}{12}\right\}$$

$$18) \frac{81^{3n+2}}{243^{-n}} = 3^4$$

$$\left\{-\frac{4}{17}\right\}$$

$$19) 81 \cdot 9^{-2b-2} = 27$$

$$\left\{-\frac{3}{4}\right\}$$

$$20) 9^{-3x} \cdot 9^x = 27$$

$$\left\{-\frac{3}{4}\right\}$$

$$21) \left(\frac{1}{6}\right)^{3x+2} \cdot 216^{3x} = \frac{1}{216}$$

$$\left\{-\frac{1}{6}\right\}$$

$$22) 243^{k+2} \cdot 9^{2k-1} = 9$$

$$\left\{-\frac{2}{3}\right\}$$

$$23) 16^r \cdot 64^{3-3r} = 64$$

$$\left\{\frac{6}{7}\right\}$$

$$24) 16^{2p-3} \cdot 4^{-2p} = 2^4$$

$$\{4\}$$