



## Workout Section

1. Perform the following operation.

$$(-1)^{113} = \underline{\hspace{2cm}}$$

2. Perform the following operation.

$$(-7)^0 = \underline{\hspace{2cm}}$$

3. Perform the following operation.

$$(-13)^2 = \underline{\hspace{2cm}}$$

4. Perform the following operation.

$$(-5)^3 = \underline{\hspace{2cm}}$$

5. Write the following exponential expression as an expanded multiplication.

$$b^4 \underline{\hspace{2cm}}$$

6. Determine the value of the following exponential expression.

$$4^4 = \underline{\hspace{2cm}}$$

7. Indicate the base and the exponent in the equation below.

$$a^b = c$$

base  $\underline{\hspace{2cm}}$

exponent  $\underline{\hspace{2cm}}$

8. Write the following exponential expression as an expanded multiplication.

$$6^4 \underline{\hspace{2cm}}$$

9. Write the following multiplication with an exponent.

$$(9)(9)(9)(9)(9)(9)(9) = \underline{\hspace{2cm}}$$

10. Perform the following multiplication by writing the result with a single base and exponent.

$$(x^2)(x^7) = \underline{\hspace{2cm}}$$

11. Calculate the following multiplication.

$$(5)(5^2)(3^2)(3) = \underline{\hspace{2cm}}$$

12. Calculate the following multiplication and write your answer in exponential form.

$$(5^9)(5^4) = \underline{\hspace{2cm}}$$

13. Calculate the following multiplication and write your answer in exponential form.

$$(60^3)(60) = \underline{\hspace{2cm}}$$

14. Perform the following multiplication by writing the result with a single base and exponent.

$$(t^{30})(t^{200}) = \underline{\hspace{2cm}}$$

15. Write the following number with a positive exponent.

$$7^{-5} = \underline{\hspace{2cm}}$$

16. Perform the following division. Write your answer with a positive exponent.

$$\frac{y^{20}}{y^{34}} = \underline{\hspace{2cm}}$$

17. Write the following number with a positive exponent.

$$y^{-100} = \underline{\hspace{2cm}}$$



- 18.** Perform the following division. Write your answer with a positive exponent.

$$\frac{x^8}{x^3} = \underline{\hspace{2cm}}$$

- 19.** Write the following number with a positive exponent.

$$\frac{1}{4^{-50}} = \underline{\hspace{2cm}}$$

- 20.** Using only positive exponents, simplify the expression  $(27c^8z^{-2})^{-1}$ .

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- 21.** Using only positive exponents, simplify the expression  $\left(\frac{d^9x^{12}}{11}\right)^2$ .

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- 22.** Using only positive exponents, simplify the expression  $(r^{13})^4$ .

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- 23.** Using only positive exponents, simplify the expression  $\left(\frac{a^8b^{24}}{x^{18}}\right)^0$ .

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- 24.** Using only positive exponents, simplify the expression  $(p^3s^7)^5$ .

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- 25.** What is the product of  $(4xy)(2y)$ ?

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- 26.** What is the product of  $(12x^{-5}y)(3xy^2)$ ?

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- 27.** What is the product of  $(a^{20})(a^{-30})$ ?

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- 28.** What is the product of  $(5b^5c)(2bc)$ ?

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- 29.** What is the product of  $(5^9)(5^{-3})$ ?

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- 30.** Perform the indicated operation and simplify if necessary  $\left(\frac{3}{7}\right)\left(\frac{4}{9}\right)$ .

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- 31.** Perform the indicated operation and simplify if necessary  $\frac{z^6}{z^5}$ .

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- 32.** Perform the indicated operation and simplify if necessary  $\left(a^{\frac{4}{5}}\right)^{\frac{7}{8}}$ .

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- 33.** Perform the indicated operation and

$$\text{simplify if necessary } \frac{w^{\frac{3}{4}}}{w^{\frac{1}{2}}}.$$


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- 34.** Perform the indicated operation and

$$\text{simplify if necessary } \left(b^{\frac{4}{9}}\right)\left(b^{\frac{2}{7}}\right).$$


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- 35.** Simplify the following expression using the necessary exponent laws.

$$\left(\frac{xy^3z}{xy^2z^2}\right)^{-1} =$$


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- 36.** Simplify the following expression using the necessary exponent laws.

$$(x^3y^5)^0 =$$


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- 37.** Simplify the following expression using the necessary exponent laws.

$$(2x)^2 \times (3x^2)^{-3} =$$


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- 38.** Simplify the following expression using the necessary exponent laws.

$$(2x^3)^{2y} =$$


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- 39.** Simplify the following expression using the necessary exponent laws.

$$\frac{(8x^2y^{-3})}{2z^{-1}} =$$


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- 40.** Using the necessary exponent laws, simplify the expression  $((5a)^2)((7a)^2)$ .
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- 41.** Using the necessary exponent laws, simplify the expression  $\left(\frac{9b^8}{11w^3}\right)\left(\frac{2w^2}{3b^5}\right)$ .
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- 42.** Using the necessary exponent laws, simplify the expression  $\left(\frac{w^6x^8}{y^4}\right)^{\frac{1}{2}}$ .
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- 43.** Using the necessary exponent laws, simplify the expression  $\left(\frac{7c^3}{9y^5}\right)\left(\frac{3y^7}{4c^6}\right)$ .
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- 44.** Using the necessary exponent laws, simplify the expression  $((3z)^4)((2z)^3)$ .
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- 45.** Please identify the radical form of the following power  $xy^{\frac{b}{c}}$ .
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- 46.** Please identify the radical form of the following power  $x^{\frac{3}{5}}$ .
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- 47.** Please identify the radical form of the following power  $c^{\frac{2}{3}}$ .
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- 48.** Please identify the radical form of the following power  $x^{\frac{1}{8}}$ .
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- 49.** Please identify the radical form of the following power  $5x^{\frac{b}{3}}$ .
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- 50.** Rewrite the following expression so that it contains only positive exponents:  
 $2x^{-7}$
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- 51.** Rewrite the following expression so that it contains only positive exponents:  
 $18a^{-2}b^5c^{-9}$
- 
- 52.** Rewrite the following expression so that it contains only positive exponents:  
 $27y^{-8}z^9$
- 
- 53.** Rewrite the following expression so that it contains only positive exponents:  
 $z^{-5}$
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- 54.** Rewrite the following expression so that it contains only positive exponents:  
 $\frac{x^{-3}}{7az^{-12}}$
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- 55.** Give the quotient of  $\frac{a^9}{a^{23}}$
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- 56.** What is the quotient of  $\frac{x^3y^4z^9}{x^{22}y^4z^{10}}$ ?
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- 57.** What is the quotient of  $(a^{15}b^{13}c^2) \div (a^3b^8)$ ?
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- 58.** Give the quotient of  $\frac{x^7}{x^3}$
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- 59.** What is the quotient of  $\frac{a^8b^3}{a^4b^7}$ ?
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