

Exponent Practice

Name: _____

Date: _____

Question 1

Solve and indicate any exponent rules applied

I. $9^2 =$

V. $8^0 =$

II. $4^3 =$

VI. $6^1 =$

III. $4^{-2} =$

VII. $-6^2 =$

IV. $7^0 =$

VIII. $(-6)^3 =$

Exponent Practice

IX. $(-6)^2 =$

XIII. $(\frac{2}{5})^{-2} =$

X. $9^{\frac{1}{2}} =$

XIV. $(\frac{9}{25})^{\frac{1}{2}} =$

XI. $27^{\frac{1}{3}} =$

XV. $(\frac{9}{25})^{-\frac{1}{2}} =$

XII. $(\frac{2}{5})^2 =$

XVI. $(3 \cdot 3)^2 =$

Exponent Practice

XVII. $6^4 \div 6^2 =$

XVIII. $2^2 \cdot 2^2 =$

XIX. $2^2 + 2^2 =$

XX. $2^4 - 2^2 =$

XXI. $(2^2)^2 =$

Exponent Practice

Name: _____ **Key**

Date: _____

Question 1

Solve and indicate any exponent rules applied

l. $9^2 = 81$

V. $8^0 = 1$

Zero Exponent Rule

$$\begin{array}{r} \text{\#1} \quad 9. \\ \text{\#2} \times \underline{9.} \\ 81. \end{array}$$

II. $4^3 = 64$

VI. $6^1 = 6$

#1 $\times$ 4 = 16

#2 $\times$ 4 = 64

III. $4^{-2} = 0.0625$

VII. $-6^2 = -36$

$\frac{1}{4^2} \rightarrow \begin{array}{r} 4. \\ \times 4. \\ \hline 16. \end{array} \rightarrow \frac{1}{16} \rightarrow 16 \overline{) 0.0625}$

Negative Exponent Rule

$\begin{array}{r} 0.0625 \\ 16 \overline{) 1.0000} \\ \underline{-96} \\ 40 \\ \underline{-32} \\ 80 \\ \underline{-80} \\ 0 \end{array}$

Negative Exponent Rule

#1 6.
#2 $\times \frac{6}{36}$ apply negative $\rightarrow -36$

IV. $7^0 = 1$

Zero Exponent Rule

VIII. $(-6)^3 = -216$

#1 $\begin{array}{r} -6. \\ \times -6. \\ \hline 36. \end{array}$ #3 $\begin{array}{r} 36. \\ \times -6. \\ \hline -216. \end{array}$

Exponent Practice

IX. $(-6)^2 = 36$

#1 $-6.$
#2 $\times -6.$
 $36.$

XIII. $(\frac{2}{5})^{-2} = 6.25$

$(\frac{5}{2})^2 \rightarrow \frac{5^2}{2^2} \rightarrow \frac{25}{4} \rightarrow 4 \overline{) 06.25}$
Negative Exponent Rule Power of a Fraction Rule
#1 $5.$ #1 $2.$
#2 $\times 5.$ #2 $\times 2.$
 $25.$ $4.$

$4 \overline{) 25.00}$
 $\underline{-24}$
 10
 $\underline{-8}$
 20
 $\underline{-20}$
 0

X. $9^{\frac{1}{2}} = 3$

$\sqrt[2]{9^1} = 3$

Fractional Exponent Rule

XIV. $(\frac{9}{25})^{\frac{1}{2}} = 0.6$

$\frac{9^{\frac{1}{2}}}{25^{\frac{1}{2}}} \rightarrow \frac{\sqrt[2]{9^1}}{\sqrt[2]{25^1}} \rightarrow \frac{3}{5} \rightarrow 5 \overline{) 0.6}$
Power of a Fraction Rule Power of a Fraction Rule

$5 \overline{) 3.0}$
 $\underline{-30}$
 0

XI. $27^{\frac{1}{3}} = 3$

$\sqrt[3]{27^1} = 3$

Fractional Exponent Rule

XV. $(\frac{9}{25})^{-\frac{1}{2}} = 1.667$

$(\frac{25}{9})^{\frac{1}{2}} \rightarrow \frac{25^{\frac{1}{2}}}{9^{\frac{1}{2}}} \rightarrow \frac{\sqrt[2]{25^1}}{\sqrt[2]{9^1}} \rightarrow \frac{5}{3} \rightarrow 3 \overline{) 1.6666}$
Negative Exponent Rule Power of a Fraction Rule Power of a Fraction Rule

$3 \overline{) 5.0000}$
 $\underline{-3}$
 20
 $\underline{-18}$
 20
 $\underline{-18}$
 20
 $\underline{-18}$
 20
 $\underline{-18}$
 2

XII. $(\frac{2}{5})^2 = 0.16$

$\frac{2^2}{5^2} \rightarrow \frac{4}{25} \rightarrow 25 \overline{) 0.16}$
Power of a Fraction Rule

$25 \overline{) 4.00}$
 $\underline{-25}$
 150
 $\underline{-150}$
 0

#1 $2.$ #1 $5.$
#2 $\times 2.$ #2 $\times 5.$
 $4.$ $25.$

XVI. $(3 \cdot 3)^2 = 81$

$3^2 \cdot 3^2 \rightarrow 3^{2+2} \rightarrow 3^4$
Power of a Product Rule Product Rule

#1 $3.$ #3 $9.$ #4 $27.$
#2 $\times 3.$ #3 $\times 3.$ #4 $\times 3.$
 $9.$ $27.$ $81.$

Exponent Practice

XVII. $6^4 \div 6^2 = 36$

Quotient Rule
 $6^{4-2} \rightarrow 6^2 \rightarrow$

#1	6.
#2 x	<u>6.</u>
	36.

XVIII. $2^2 \cdot 2^2 = 16$

Product Rule
 $2^{2+2} \rightarrow 2^4 \rightarrow$

#1	2.
#2 x	<u>2.</u>
	4.

#3 x	<u>4.</u>
	8.

#4 x	<u>8.</u>
	16.

XIX. $2^2 + 2^2 = 8$

4.
+ 4.
<u>8.</u>

#1	2.
#2 x	<u>2.</u>
	4.

XX. $2^4 - 2^2 = 12$

16.
- 4.
<u>12.</u>

#1	2.
#2 x	<u>2.</u>
	4.

#3 x	<u>4.</u>
	8.

#4 x	<u>8.</u>
	16.

XXI. $(2^2)^2 = 16$

Power Rule
 $2^{2 \cdot 2} \rightarrow 2^4 \rightarrow$

#1	2.
#2 x	<u>2.</u>
	4.

#3 x	<u>4.</u>
	8.

#4 x	<u>8.</u>
	16.