

Name : \_\_\_\_\_

T2S1

## Exponents - Power of a Power Rule

A) Use the power of a power rule to rewrite each expression as a single exponent.

1)  $(15^5)^9$

2)  $((-d)^{-6})^6$

3)  $(s^{-18})^{-4}$

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\_\_\_\_\_

\_\_\_\_\_

4)  $\left(\left(\frac{2}{k}\right)^3\right)^{-7}$

5)  $((-1.8)^{-11})^{-5}$

6)  $\left(\left(-\frac{a}{b}\right)^{14}\right)^2$

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\_\_\_\_\_

B) Find the value of  $x$ .

1)  $((2.5)^{-13})^x = (2.5)^{-39}$

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$(-r)^{-x})^{-8} = (-r)^{48}$

$x =$  \_\_\_\_\_

$x =$  \_\_\_\_\_

4)  $\left(\left(-\frac{v}{7}\right)^5\right)^{-x} = \left(-\frac{v}{7}\right)^{35}$

$x^7)^3 = 9^{21}$

$x =$  \_\_\_\_\_

$x =$  \_\_\_\_\_

C) 1) Which of the following equals  $\left(\left(-\frac{4}{9}\right)^2\right)^{-15}$  ?

i)  $\left(-\frac{4}{9}\right)^{30}$

ii)  $\left(-\frac{4}{9}\right)^{-13}$

iii)  $\left(-\frac{4}{9}\right)^{-30}$

iv)  $\left(-\frac{4}{9}\right)^{-17}$

2) Find the value of  $x$ , if  $((-y)^9)^{-x} = (-y)^{-72}$ .

i) 8

ii) -7

iii) 6

iv) 9

**PREVIEW**

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Name : \_\_\_\_\_

**Exponents - Power of a Power Rule**

A) Use the power of a power rule to rewrite each expression as a single exponent.

1)  $(15^5)^9$

$15^{45}$

2)  $((-d)^{-6})^6$

$(-d)^{-36}$

3)  $(s^{-18})^{-4}$

$s^{72}$

4)  $\left(\left(\frac{2}{k}\right)^3\right)^{-7}$

$\left(\frac{2}{k}\right)^{-21}$

5)  $((-1.8)^{-11})^{-5}$

6)  $\left(\left(-\frac{a}{b}\right)^{14}\right)^2$

$\left(-\frac{a}{b}\right)^{28}$

B) Find the value of  $x$ .

1)  $((2.5)^{-13})^x = (2.5)^{-39}$

$x = 3$

4)  $\left(\left(-\frac{v}{7}\right)^5\right)^{-x} = \left(-\frac{v}{7}\right)^{35}$

$x = -7$

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$(-r)^{-x})^{-8} = (-r)^{48}$

$x = 6$

$x^7)^3 = 9^{21}$

$x = 9$

C) 1) Which of the following equals  $\left(\left(-\frac{4}{9}\right)^2\right)^{-15}$  ?

i)  $\left(-\frac{4}{9}\right)^{30}$

ii)  $\left(-\frac{4}{9}\right)^{-13}$

iii)  $\left(-\frac{4}{9}\right)^{-30}$

iv)  $\left(-\frac{4}{9}\right)^{-17}$

2) Find the value of  $x$ , if  $((-y)^9)^{-x} = (-y)^{-72}$ .

i) 8

ii) -7

iii) 6

iv) 9