

## Exponents - Power of a Power Rule

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

1)  $\left(\left(-\frac{1}{3}\right)^{-2}\right)^5$

2)  $(8^3)^{16}$

3)  $((-2.3)^{-7})^2$

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\_\_\_\_\_

4)  $(5^{12})^{-3}$

5)  $((-4)^{-5})^{-4}$

6)  $\left(\left(\frac{5}{4}\right)^4\right)^{13}$

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B) Find the value of  $x$ .

1)  $(6^x)^{-4} = 6^{-36}$

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

4)  $(x^6)^7 = (7.9)^{42}$

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

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$\left(\left(\frac{3}{2}\right)^x\right)^{13} = \left(\frac{3}{2}\right)^{65}$

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

$16^{8-x} = 16^{-16}$

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

C) 1) Which of the following equals  $((-15)^{-3})^{-4}$ ?

i)  $(-15)^{-28}$

ii)  $(-15)^{-12}$

iii)  $(-15)^{-7}$

iv)  $(-15)^{12}$

2) Find the value of  $x$ , if  $\left(\left(\frac{6}{7}\right)^x\right)^{-8} = \left(\frac{6}{7}\right)^{32}$ .

i) 4

ii) -4

iii) -6

iv) 15