

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

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

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

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

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