Name : _____

T1S1

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

2) $((-3.2)^{5})^{x} = (-3.2)^{-20}$

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

x = _____

x = _____

x = _____

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

5) $((-9)^{x})^{-9} = 1$

6) $(16^{8})^{-x} = 16^{-16}$

x = _____

x = _____

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