

Name : _____

T1S1

Exponents - Power of a Quotient Rule

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

1) $\frac{10^{-5}}{5^{-5}}$

2) $\left(\frac{1}{4}\right)^{-7} \div (-2)^{-7}$

3) $\frac{(-15)^{12}}{3^{12}}$

4) $\left(-\frac{6}{5}\right)^{10} \div \left(-\frac{3}{2}\right)^{10}$

5) $\frac{(-1.5)^{-3}}{(2.5)^{-3}}$

6) $\frac{(5.6)^{-14}}{4^{-14}}$

B) Find the value of x .

1) $\frac{16^9}{8^x} = 2^9$

$x =$ _____

2) $\left(-\frac{1}{2}\right)^6 \div x^{-6} = \left(\frac{2}{3}\right)^6$

$x =$ _____

3) $(-x)^{13} \div \left(\frac{6}{7}\right)^{13} = 14^{13}$

$x =$ _____

4) $\frac{(4.5)^{-11}}{(-x)^{-11}} = (1.5)^{-11}$

$x =$ _____

5) $\frac{x^2}{(-18)^2} = \left(-\frac{7}{9}\right)^2$

$x =$ _____

6) $\frac{(-9.6)^{-4}}{x^{-4}} = -3^{-4}$

$x =$ _____

C) 1) Find the value of x , if $(-x)^{-8} \div \left(\frac{7}{8}\right)^{-8} = \left(\frac{2}{7}\right)^{-8}$.

i) $\frac{1}{4}$

ii) $-\frac{1}{8}$

iii) $-\frac{1}{4}$

iv) $\frac{1}{7}$

2) Which of the following equals $\frac{(-18)^{15}}{(2)^{15}}$?

i) $(-9)^{15}$

ii) $(-6)^{15}$

iii) 9^{15}

iv) 7^{15}

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$\left(-\frac{1}{8}\right)^{-7}$

3) $\frac{(-15)^{12}}{3^{12}}$

$(-5)^{12}$

4) $\left(-\frac{6}{5}\right)^{10} \div \left(-\frac{3}{2}\right)^{10}$

$\left(\frac{4}{5}\right)^{10}$

5) $\frac{(-1.5)^{-3}}{(2.5)^{-3}}$

$(-0.6)^{-3}$

6) $\frac{(5.6)^{-14}}{4^{-14}}$

$(1.4)^{-14}$

B) Find the value of x .

1) $\frac{16^9}{8^x} = 2^9$

$x =$ 9

2) $\left(-\frac{1}{2}\right)^6 \div x^{-6} = \left(\frac{2}{3}\right)^6$

$x =$ $-\frac{3}{4}$

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$x =$ -12

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$x =$ -3

5) $\frac{x^2}{(-18)^2} = \left(-\frac{7}{9}\right)^2$

$x =$ 14

6) $\frac{(-9.6)^{-4}}{x^{-4}} = -3^{-4}$

$x =$ 3.2

C) 1) Find the value of x , if $(-x)^{-8} \div \left(\frac{7}{8}\right)^{-8} = \left(\frac{2}{7}\right)^{-8}$.

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