

## Exponents - Power of a Quotient Rule

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

1)  $\frac{(-20)^{-4}}{2^{-4}}$

2)  $\frac{(-p)^5}{(-q)^5}$

3)  $\left(\frac{r}{9s}\right)^{12} \div \left(-\frac{r}{3t}\right)^{12}$

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4)  $\left(-\frac{4b}{c}\right)^{-13} \div b^{-13}$

5)  $\frac{(-6.6)^3}{(-1.1)^3}$

6)  $(16u)^{-2} \div \left(\frac{2u}{5v}\right)^{-2}$

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B) Find the value of  $x$ .

1)  $\frac{12^{11}}{(-3)^x} = (-4)^{11}$

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

4)  $\left(-\frac{7d}{3c}\right)^9 \div x^{-9} = \left(-\frac{1}{6c}\right)$

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

# PREVIEW

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$-x)^{15} \div \left(\frac{n}{w}\right)^{15} = \left(\frac{m}{n}\right)^{15}$

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

$\frac{(8.4)^{14}}{x^{14}} = 7^{14}$

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

C) 1) Find the value of  $x$ , if  $x^{-8} \div \left(\frac{5a}{3b}\right)^{-8} = (6b)^{-8}$ .

i)  $-10a$

ii)  $5a$

iii)  $10a$

iv)  $-5a$

2) Which of the following equals  $\frac{(-18y)^{20}}{(9z)^{20}}$  ?

i)  $\left(-\frac{2y}{z}\right)^{20}$

ii)  $\left(\frac{y}{2z}\right)^{20}$

iii)  $\left(-\frac{2z}{y}\right)^{20}$

iv)  $\left(\frac{z}{2y}\right)^{20}$

**Exponents - Power of a Quotient Rule**

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

1)  $\frac{(-20)^{-4}}{2^{-4}}$

$(-10)^{-4}$

2)  $\frac{(-p)^5}{(-q)^5}$

$\left(\frac{p}{q}\right)^5$

3)  $\left(\frac{r}{9s}\right)^{12} \div \left(-\frac{r}{3t}\right)^{12}$

$\left(-\frac{t}{3s}\right)^{12}$

4)  $\left(-\frac{4b}{c}\right)^{-13} \div b^{-13}$

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

5)  $\frac{(-6.6)^3}{(-1.1)^3}$

$(40v)^{-2}$

6)  $(16u)^{-2} \div \left(\frac{2u}{5v}\right)^{-2}$

B) Find the value of  $x$ .

1)  $\frac{12^{11}}{(-3)^x} = (-4)^{11}$

$x =$   $11$

4)  $\left(-\frac{7d}{3c}\right)^9 \div x^{-9} = \left(-\frac{1}{6c}\right)$

$x =$   $14d$

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$-x)^{15} \div \left(\frac{n}{w}\right)^{15} = \left(\frac{m}{n}\right)^{15}$

$x =$   $-\frac{m}{w}$

$\frac{(8.4)^{14}}{x^{14}} = 7^{14}$

$x =$   $1.2$

C) 1) Find the value of  $x$ , if  $x^{-8} \div \left(\frac{5a}{3b}\right)^{-8} = (6b)^{-8}$ .

i)  $-10a$

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