

Exponents - Power of a Product Rule

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

1) $9^7 \cdot 11^7$

2) $\left(-\frac{6a}{b}\right)^{-10} \cdot \left(\frac{b}{c}\right)^{-10}$

3) $(-k)^{-6} \cdot (-d)^{-6}$

4) $p^4 \cdot (-3q)^4$

5) $(1.2)^{-9} \cdot (-6)^{-9}$

6) $m^{12} \cdot \left(\frac{n}{m}\right)^{12}$

B) Find the value of x .

1) $x^{-17} \cdot \left(\frac{c}{d}\right)^{-17} = c^{-17}$

 $x =$ _____

4) $(-x)^3 \cdot (-8)^3 = (9.6)^3$

 $x =$ _____

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4) $4y^{19} \cdot (-x)^{19} = (8yz)^{19}$

 $x =$ _____

$c^{-6} \cdot (-r)^{-6} = (-sr)^{-6}$

 $r =$ _____

C) 1) Which of the following equals $\left(\frac{n}{p}\right)^2 \cdot \left(-\frac{p}{q}\right)^2$?

i) $\left(\frac{n}{q}\right)^2$

ii) $\left(\frac{n}{q}\right)^4$

iii) $\left(-\frac{n}{q}\right)^2$

iv) $\left(-\frac{n}{q}\right)^4$

2) Find the value of x , if $x^{-4} \cdot (-5)^{-4} = 25^{-4}$.

i) -5

ii) -15

iii) -10

iv) 5

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99⁷

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 $(-3pq)^4$

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 n^{12}

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$x =$
 d

$4y)^{19} \cdot (-x)^{19} = (8yz)^{19}$

$x =$
 $-2z$

4) $(-x)^3 \cdot (-8)^3 = (9.6)^3$

$x =$
1.2

$c^{-6} \cdot (-r)^{-6} = (-sr)^{-6}$

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