

Exponents - Product Rule

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

1) $(-1.6)^{-13} \cdot (-1.6)^{-16}$

2) $\left(\frac{1}{q}\right)^{-15} \cdot \left(\frac{1}{q}\right)^9$

3) $n^6 \cdot n^{-2}$

4) $13^{-11} \cdot 13^4$

5) $(-c)^{10} \cdot (-c)^{17}$

6) $9^7 \cdot 9^{12}$

B) Find the value of x .

1) $\left(\frac{v}{w}\right)^x \cdot \left(\frac{v}{w}\right)^8 = \left(\frac{v}{w}\right)^{-6}$

 $x =$ _____

4) $17^{-x} \cdot 17^4 = 17^{-19}$

 $x =$ _____

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$t^x \cdot u^{-7} = u^{15}$

 $r =$ _____

$c^8 \cdot (-6)^{12} = (-6)^{20}$

 $r =$ _____

C) 1) Find the value of x , if $\left(-\frac{t}{5}\right)^x \cdot \left(-\frac{t}{5}\right)^{-5} = \left(-\frac{t}{5}\right)^{-10}$.

i) 15

ii) -15

iii) -5

iv) 5

2) Which of the following equals $z^8 \cdot z$?

i) z^8 ii) z^7 iii) $(-z)^9$ iv) z^9