

Exponents - Product Rule

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

1) $(-w)^{-14} \cdot (-w)^4$

2) $r^{-6} \cdot r^{-2}$

3) $2^{12} \cdot 2^{-15}$

4) $(7.7)^{18} \cdot (7.7)^{-5}$

5) $\left(-\frac{u}{3}\right)^9 \cdot \left(-\frac{u}{3}\right)^3$

6) $(-d)^{-10} \cdot (-d)^{19}$

B) Find the value of x .

1) $q^{-x} \cdot q^{11} = q^{-14}$

 $x =$ _____

4) $(-x)^{29} \cdot \left(-\frac{y}{z}\right)^{-9} = \left(-\frac{y}{z}\right)^{-9}$

 $x =$ _____

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$(-m)^x \cdot (-m)^{-10} = (-m)^{-21}$

 $x =$ _____

$s^4 \cdot s^{-x} = s^6$

 $x =$ _____

C) 1) Which of the following equals $(-k)^{-2} \cdot (-k)^3$?

i) $(-k)^5$

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

iii) k

iv) $-k$

2) Find the value of x , if $(4.9)^{-19} \cdot (4.9)^x = (4.9)^0$.

i) 19

ii) -19

iii) 0

iv) 38