

## 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

Name : \_\_\_\_\_

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

$(-w)^{-10}$

$r^{-8}$

$2^{-3}$

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

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

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

$(7.7)^{13}$

$(-d)^9$

B) Find the value of  $x$ .

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

$x =$   $25$

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

$x =$   $\frac{y}{z}$

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

$x =$   $-11$

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

$x =$   $-2$

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)  $38$