

Name : _____

T1S1

Exponents - Power of a Product Rule

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

1) $(-4)^5 \cdot (-12)^5$

2) $\left(-\frac{1}{6}\right)^6 \cdot \left(\frac{3}{2}\right)^6$

3) $(-7.2)^{14} \cdot 6^{14}$

4) $9^{-12} \cdot 8^{-12}$

5) $(5.5)^{-8} \cdot (-1.4)^{-8}$

6) $(-3)^2 \cdot \left(-\frac{4}{3}\right)^2$

B) Find the value of x .

1) $x^{-17} \cdot \left(\frac{6}{7}\right)^{-17} = (-6)^{-17}$

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3) $1^{-20} \cdot (-x)^{-20} = (6.2)^{-20}$

$x =$ _____

$x =$ _____

4) $(-x)^3 \cdot (1.5)^3 = (-1.8)$

$c^{-9} \cdot 4^{-9} = 40^{-9}$

$x =$ _____

$c =$ _____

C) 1) Which of the following equals $\left(\frac{9}{2}\right)^{15} \cdot \left(-\frac{2}{3}\right)^{15}$?

i) 18^{15}

ii) $(-3)^{15}$

iii) 3^{15}

iv) $(-9)^{30}$

2) Find the value of x , if $x^{-4} \cdot 8^{-4} = 64^{-4}$.

i) 8

ii) -8

iii) -14

iv) 18

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3) $(-7.2)^{14} \cdot 6^{14}$

48⁵

$\left(-\frac{1}{4}\right)^6$

$(-43.2)^{14}$

4) $9^{-12} \cdot 8^{-12}$

5) $(5.5)^{-8} \cdot (-1.4)^{-8}$

6) $(-3)^2 \cdot \left(-\frac{4}{3}\right)^2$

72⁻¹²

4²

B) Find the value of x .

1) $x^{-17} \cdot \left(\frac{6}{7}\right)^{-17} = (-6)^{-17}$

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3.1)⁻²⁰ · (-x)⁻²⁰ = (6.2)⁻²⁰

$x =$ -7

$x =$ -2

4) $(-x)^3 \cdot (1.5)^3 = (-1.8)$

$x^{-9} \cdot 4^{-9} = 40^{-9}$

$x =$ 1.2

$x =$ 10

C) 1) Which of the following equals $\left(\frac{9}{2}\right)^{15} \cdot \left(-\frac{2}{3}\right)^{15}$?

i) 18¹⁵

ii) (-3)¹⁵

iii) 3¹⁵

iv) (-9)³⁰

2) Find the value of x , if $x^{-4} \cdot 8^{-4} = 64^{-4}$.

i) 8

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