

Properties of Exponents

Classwork

1. Complete each equation for the missing value:

a. $(5^2)(5^5) = 5^?$

b. $(12^7)(12^3) = 12^?$

c. $(3^{-2})(3^5) = 3^?$

d. $(4^9)(4^{-3}) = 4^?$

e. $(5^4)(5^?) = 5^{12}$

f. $(10^7)(10^?) (10^{-6}) = 10^3$

g. $3^4 \div 3^2 = 3^?$

h. $\frac{5^9}{5^6} = 5^?$

i. $\frac{9^5}{9^8} = 9^?$

j. $12^4 \div 12^6 = 12^?$

k. $10^8 \div 10^? = 10^3$

l. $\frac{2^?}{2^3} = 2^4$

2. A rectangle has a length of 5^{15} mm and a width of 5^{12} mm. Write an expression for the area of the rectangle as a power of 5.*

3. Express the volume of a cube with a side length of 7^4 inches as a power of 7.*

4. a) Write an exponential expression for the area of a rectangle with a length of 10^{-5} meters and a width of 10^{-7} meters. b) Evaluate the expression to find the area of the rectangle.*

* From [Engage NY](#)

Homework

5. Complete each equation for the missing value:

a. $(12^2)(12^7) = 12^?$

b. $(2^5)(2^2) = 2^?$

c. $(5^{-3})(5^5) = 5^?$

d. $(15^8)(15^{-5}) = 15^?$

e. $(6^7)(6^?) = 6^{15}$

f. $(11^{-6})(11^?)(11^8) = 11^5$

g. $7^7 \div 7^3 = 7^?$

h. $\frac{11^{10}}{11^6} = 11^?$

i. $3^7 \div 3^9 = 3^?$

j. $\frac{2^6}{2^{10}} = 2^?$

k. $\frac{13^6}{13^?} = 13^2$

l. $5^? \div 5^6 = 5^3$

6. A rectangle has a length of 4^8 mm and a width of 4^6 mm. Write an expression for the area of the rectangle as a power of 4.*

7. Express the volume of a cube with a side length of 2^5 inches as a power of 2.*

8. a) Write an exponential expression for the area of a rectangle with a length of 7^{-2} meters and a width of 7^{-4} meters. b) Evaluate the expression to find the area of the rectangle.*