

# Dividing Powers

9N5 - Explain and apply the exponent laws for powers with integral exponents:

$$x^m \div x^n = x^{m-n}$$

## Dividing Powers

When dividing powers with the **same base**, subtract the exponents.

$$\begin{aligned} y^7 \div y^2 &= \frac{(y)(y)(y)(y)(y)(\cancel{y})(\cancel{y})}{(\cancel{y})(\cancel{y})} \\ &= (y)(y)(y)(y)(y) \\ &= y^5 \end{aligned}$$

Note that the base does not change, only the exponent changes.

Print

Examples:

$$\begin{aligned} \frac{x^5}{x^2} &= \frac{(x)(x)(x)(\cancel{x})(\cancel{x})}{(\cancel{x})(\cancel{x})} = x^3 \\ \frac{4^2}{4^4} &= \frac{(4)(4)}{(4)(4)(4)(4)} = \frac{1}{(4)(4)} = \frac{1}{16} \end{aligned}$$

$$4^5 \div 4^3 = 4^n$$

Q.1

What is the value of n in the above equation?

A 1	C 2
B 15	D 8

$$x^3 \div x = x^n$$

Edit

Q.1

?

What is the value of n in the above equation?

A

2

C

0

B

3

D

1

$$y^4 \div y^n = y^3$$

Edit

Q.1

?

What is the value of n in the above equation?

A

0

C

3

B

1

D

4

Example:

$$\frac{a^5 b^3}{a^2 b^2} = a^3 b$$

Simplify the following.

$$\frac{12x^4 y^5}{4xy^4}$$

$$\frac{36a^3 b^{-2}}{12a^3 b^{-5}}$$

We can also combine exponent rules.

$$\frac{x^5 \times x^3}{x^2}$$



Simplify the following.

$$\frac{y^3 \times y^{-5}}{y^{-4}}$$

$$\frac{(x^2 y^3)(xy)}{x^2 y^2}$$

Pull

Pull

Simplify the following.

$$45x^{-3} \div 5x^5 \times 3x^{10}$$

Pull

## Attachments

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Dividing Powers.doc

Exponent Rules 1.doc