

Learning Objectives:

Understand the means of square and cube terms

Be able to multiply terms and simplify the result

Be able to divide terms and simplify the result

B
I
D
M
A
S

$$a^2 = a \times a$$

expanded form

$$a^3 = a \times a \times a$$

$$ab^2 = a \times b \times b$$

$$a^2 b = a \times a \times b$$

Recap



$$\begin{matrix} 7ac, 3ac \\ \downarrow \quad \downarrow \\ 7 \times a \times c \quad 3 \times a \times c \end{matrix}$$

$$\begin{array}{r} 2 \times 3 = 6 \\ \hline 3 \times 2 = 6 \end{array}$$

$$7ac = 7 \times a \times c$$

$$= 7 \times c \times a$$

$$= c \times a \times 7$$

$$= a \times c \times 7$$

order can
change

e.g.

$$7a \times 3b = 7 \times a \times 3 \times b$$

$$= 7 \times 3 \times a \times b$$

$$= 21 \times a \times b$$

$$= \underline{\underline{21ab}}$$

eg2 $4ab \times 3ac = 4 \times a \times b \times 3 \times a \times c$

1. Expanded it $= 4 \times 3 \times a \times a \times b \times c$

2. Re. order $= 12 \times a^2 \times b \times c$

3. Simplify $= \underline{\underline{12a^2bc}}$

4. Remove 'x' signs

eg. $\overbrace{7a} \times \overbrace{2bc} \times \overbrace{3d} = 7 \times a \times 2 \times b \times c \times 3 \times d$

$$= 7 \times 2 \times 3 \times a \times b \times c \times d$$
$$= 42 \times a \times b \times c \times d$$
$$= \underline{\underline{42abcd}}$$

eg2 $3xy \times 5xz = 3 \times x \times xy \times 5 \times x \times z$

$$= 3 \times 5 \times x \times x \times y \times z$$
$$= 15 \times x^2 \times y \times z$$
$$= \underline{\underline{15x^2yz}}$$

Division

$$\frac{1}{1} = 1$$

$$\frac{10}{10} = 1$$

$$\frac{312}{312} = 1$$

$$\frac{x^2}{x^2} = \frac{1}{1} = 1$$

$$\frac{a}{a} = 1 \quad \frac{ab}{ab} = 1$$

canceling

$$\frac{axb}{axb} = \frac{1 \times 1}{1 \times 1} = \frac{1}{1} = 1$$

BENARE!



Tops + Bottoms must be
all multiplied

$$\boxed{\frac{a+b}{ab}}$$

won't work!

eg. $\frac{ab}{bc} = \frac{a \times 1}{1 \times c} = \underline{\underline{\frac{a}{c}}}$

①

eg. $\frac{2b}{4bc} = \frac{2 \times 1}{4 \times 1 \times c} = \frac{\underline{\underline{2}}}{\underline{\underline{4c}}} = \frac{1}{2c}$

eg. $\frac{10ab}{15bc} = \frac{2 \times a \times 1}{3 \times 1 \times c} = \underline{\underline{\frac{2a}{3c}}} \quad \frac{b}{15} = \frac{2}{3}$

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③ ①

eg. $\frac{18x^2y}{18xy} = \frac{9}{18} \times \frac{x^2}{x} \times \frac{y}{y} = \underline{\underline{9xx \times 1 \times y}}$

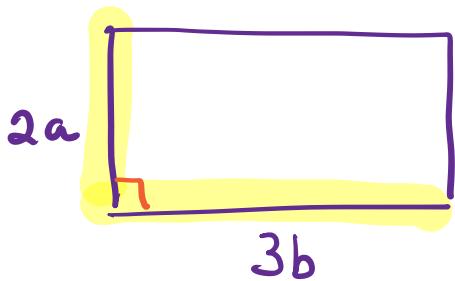
$8xz$

$4 \cancel{8xz}$

$4 \times 1 \times z$

$$= \frac{9xy}{4z}$$

e.g.



Area = $2a \times 3b$

= $2 \times a \times 3 \times b$

= $2 \times 3 \times a \times b$

= $6 \times a \times b$

= bab units²

e.g.

$$3x \times \boxed{2y} \times z = \underline{6xyz}$$

$$\underline{3} \times \underline{x} \times \boxed{2y} \times \underline{z} = \underline{b} \times \underline{x} \times \boxed{y} \times \underline{z}$$