

Year 8 Autumn 2

KEYWORDS:

Product Means to multiple. Eg: the product of 3 and 4 is 3×4

Expand Multiply each term inside the bracket by the term in front of the bracket

Linear Equation An equation where the highest power that appears is 1. Eg: $10 - 2a = 4 + a$

Factorise The reverse of expanding brackets

Variable A letter that represents an unknown number

Substitute Replacing variables with numbers to calculate a numerical answer

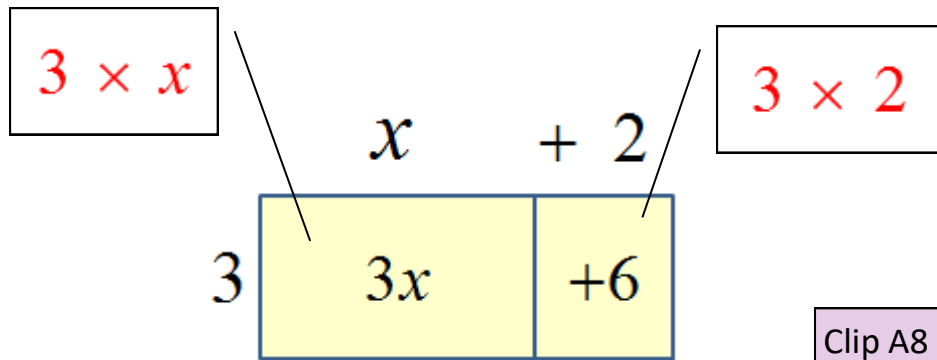
Coefficient A value, that appears in front of, and multiples a term inside an expression. Eq: the 4 in $4y^2$

Fully Factorise Factorise with the HCF

Expanding Single Brackets

Expand $3(x + 2)$

$$3(x + 2) \equiv 3x + 6$$



Clip A8

Rules of Indices

$$a^m \times a^n = a^{m+n}$$

eg: $3^7 \times 3^4 = 3^{7+4}$
 $= 3^{11}$

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

eg: $5^6 \div 5^4 = 5^{6-4}$
 $= 5^2$

$$(a^m)^n = a^{m \times n}$$

eg: $(5^3)^4 = 5^{3 \times 4}$
 $= 5^{12}$

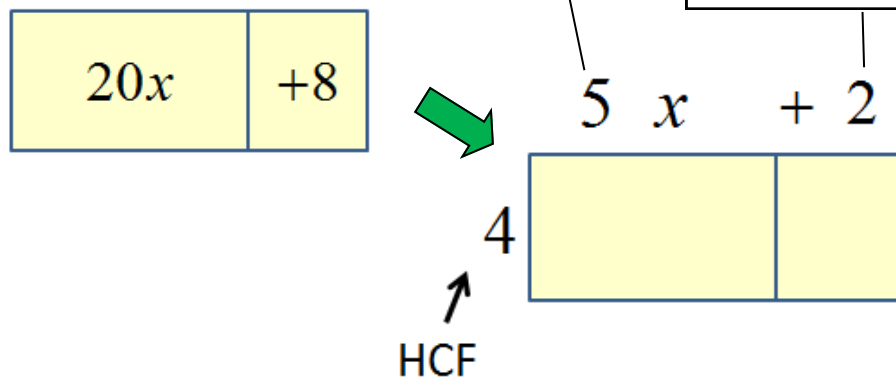
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Factorising Single Brackets

Fully factorise $20x + 8$

$$20x \div 4 = 5x$$

$$8 \div 4 = 2$$



$$20x + 8 \equiv 4(5x + 2)$$

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Drawing Linear Inequalities

Open circles are used for numbers that are **less than** or **greater than** ($<$ or $>$)

Closed circles are used for numbers that are **less than or equal to** or **more than or equal to** (\leq or \geq)



$$x \geq 1$$



$$x < 8$$



$$2 < x \leq 6$$

Clip A20a, A20b

Solving Linear Equations and Inequalities

To solve an equation or an inequality, perform the inverse operation on both sides of the equation to find the value of the unknown

$$\begin{aligned} 5a - 7 &= 58 && +7 \\ 5a &= 65 && \div 5 \\ a &= 13 \end{aligned}$$

$$\begin{aligned} \frac{1}{2}x + \frac{1}{5} &= 4 && \times 10 \\ 5x + 2 &= 40 && -2 \\ 5x &= 38 && \div 5 \\ x &= \frac{38}{5} \end{aligned}$$

$$2x + 7 = x + 15$$

$$x + 7 = 15$$

$$x = 8$$

$$15 - 7 = 8$$



You can also use bar models to solve linear questions

Clip A12, A17, A19

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