

# Y7L U6 Expressions, Equations, Inequalities: Knowledge Organiser

**An expression** is anything written in algebra e.g.  $2x + 7$

**An equation** is an expression that **uses the "="** sign to show values are the same e.g.  $2x + 7 = 8$

**An inequality** is an expression that **shows values are not equal using the symbols  $\neq \geq \leq > <$**

e.g.  $3x > 2$ ,  $x \neq -7$   $x \leq 32$

## Expressions

$4x$  means  $4 \times x$

$0.5g$  means  $0.5 \times g$

$\frac{x}{4}$  means  $x \div 4$

$\frac{4k}{3}$  means  $(4 \times k) \div 3$

## Substituting into expressions

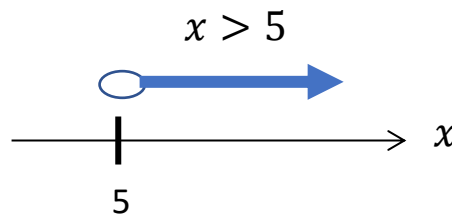
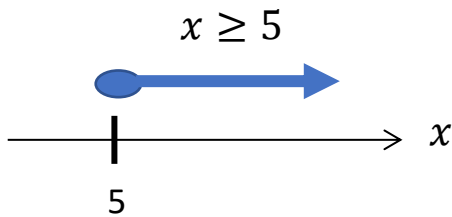
if  $x = 2$  then  $4x$  means  $4 \times 2$

if  $g = (-4)$  then  $0.5g$  means  $0.5 \times (-4) = (-2)$

if  $x = 12$  then  $\frac{x}{4}$  means  $12 \div 4 = 3$

if  $k = 6$  then  $\frac{4k}{3}$  means  $\frac{4 \times 6}{3} = \frac{24}{3} = 8$

When **drawing inequalities on a number line the solid circle** means it can equal to the number. **The empty circle** means it cannot equal the number



## Solve equations using inverses

$$7x = 63$$

$$x = 9$$

$$p - 13 = 44$$

$$p = 57$$

$$\frac{t}{8} = 6$$

$$t = 48$$

$$7x - 7 = 63$$

$$7x = 70$$

$$x = 10$$

$$\frac{p}{5} + 14 = 44$$

$$\frac{p}{5} = 30$$

$$p = 150$$

## Expand a bracket

$$\begin{aligned} 5(p - 7) \\ = 5p - 35 \end{aligned}$$

$$\begin{aligned} 6(2t - 5y) \\ = 12t - 30y \end{aligned}$$

## Collecting terms

$$d + d + d + d + d = 5d$$

$$5h - 2h = 3h$$

$$\begin{aligned} 9y + 3x - 5y + 4x \\ = 3x + 4x + 9y - 5y \\ = 7x + 4y \end{aligned}$$

## Hegarty

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