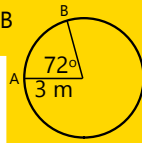**Expressions Revision Starter**

Simplify $\sqrt{48}$

Simplify $\dfrac{a^5 \times a^{-4}}{a}$

Simplify $\dfrac{3}{2g} - \dfrac{4}{g}$

Factorise $x^2 - 11x + 28$

Write $\dfrac{3}{\sqrt{5}}$ with a rational denominator

Find the gradient of the straight line joining (-2, -5) and (4, 5).

Find the length of the minor arc AB

B
A $\boxed{72°}$ 3 m

Factorise $2x^2 - 50$

Write $x^2 + 4x - 1$ in the form $(x + a)^2 + b$

Today's Learning:

To solve linear equations.

Solving Linear Equations

Always do the same to both sides.   13/9/17

e.g. 1) $10(h - 5) = 2(3 - h)$

$$10h - 50 = 6 \enclose{circle}{-2h}$$
$$+2h \qquad\qquad +2h$$
$$12h \enclose{circle}{-50} = 6$$
$$12h = 56$$
$$h = \frac{56}{12} = \frac{28}{6} = \frac{14}{3}$$

2) $\dfrac{m}{10} + 3 = 2 - 5m$

$\enclose{circle}{\times 10}$

$$m + 30 = 20 - 50m$$
$$+50m \qquad +50m$$
$$51m + 30 = 20$$
$$-30 \qquad -30$$
$$51m = -10$$
$$m = \frac{-10}{51}$$

Challenge

Solve this equation for b: $2(b + 4) = b - 7$

$$2b + 8 = \enclose{circle}{b} - 7$$
$$-b \qquad\quad -b$$
$$b \enclose{circle}{+ 8} = -7$$
$$-8 \qquad -8$$
$$b = -15$$

$$\frac{5x-2}{3} \times \frac{4x+1}{2}$$

$$\boxed{2(5x-2) = 3(4x+1)}$$

$$5x-2 = \frac{12x+3}{2}$$

$$10x-4 = 12x+3$$

Make up a question for your neighbour to solve.

Starter $3x^2 \cdot 6A$

1) Simplify: $\dfrac{x^2 - 5x + 6}{x^2 - 9}$ $= \dfrac{(x-3)(x-2)}{(x+3)(x-3)} = \dfrac{x-2}{x+3}$

2) Solve for T: 5T - 2 = 4(T - 2)

$$5T-2 = 4T-8$$
$$T-2 = -8$$
$$T = -6$$

3) Simplify $\sqrt{108}$ $= \sqrt{2 \times 54}$
$$= \sqrt{4 \times 27}$$
$$= 2\sqrt{27}$$
$$= 2\sqrt{9 \times 3}$$
$$= 2 \times 3 \times \sqrt{3}$$
$$= 6\sqrt{3}$$

Today's Learning:

To solve algebraic inequations.

4) Simplify $5c^2 \times \dfrac{1}{c}$

$$= 5c^2 \times 1c^{-1}$$
$$= 5c^1$$
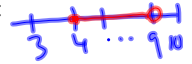$$= 5c$$

Solving Inequations

< means less than

> means greater than

≤ means less than or equal to

means greater than or equal to

3/10/16

Think of 4 numbers that fit each inequality:

a) 4 ≤ a < 9 $4, 5, 6, 7, 8$

b) b > 7 $8, 9, 10, 11$

c) -1 ≥ c ≥ -10 $-1, -2, -3, -4$

d) d < 5 $4, 3, 2, 1$

3   4 ... 9 10

6   7   8 ...?

Solving Inequations

< means less than

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⭐ To solve, we treat the inequality like an equals sign, **except** when we multply or divide by a negative number.

Solve for T: $-4T + 1 < -2T$

$1 < 2T$ $+2T \quad +2T$

$\frac{1}{2} < T$ $-2T + 1 < 0$

$ -1 \quad -1$

$-2T < -1$

$-T < \frac{-1}{2}$

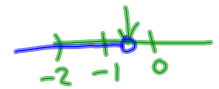$T < \frac{1}{2} \quad T > \frac{1}{2}$

$-2 \quad -1 \quad 0$

$-T = -1$

$T = 1$

Solving Inequations

< means less than

> means greater than

≤ means less than or equal to

means greater than or equal to

⭐ To solve, we treat the inequality like an equals sign, **except** when we multiply or divide by a negative number.

e.g. 1) 3a + 7 > a - 3

$$+3 \qquad +3$$
$$3a + 10 > a$$
$$-a \qquad -a$$
$$2a + 10 > 0$$
$$-10 \qquad -10$$
$$2a > -10$$
$$÷2 \qquad ÷2$$
$$a > -5$$

$$10 > -2a$$
$$5 > -a$$
$$a > -5$$

2) -2x + 12   8

$$-12 \qquad -12$$
$$-2x \; \leqslant \; -4$$
$$÷-2 \qquad ÷-2$$
$$x \; \geqslant \; 2$$

when you ÷ by a negative, flip the sign

Solve these inequations:

a) 3w - 3 > 2w + 7

$$-2w \qquad -2w$$
$$w - 3 > 7$$
$$w > 10$$

b) 3 - 2x < 16 + x - 4

$$3 - 3x < 12$$
$$-3x < 9$$
$$3x > -9$$
$$x > -3$$

$$3 - 2x < 12 + x$$
$$+2x \qquad +2x$$
$$3 < 12 + 3x$$
$$-12 \qquad -12$$
$$-9 < 3x$$
$$-3 < x$$