Starter

1) Write down the gradient and y-intercept of the straight line with equation $2y - 7x + 1 = 0$

$2y = 7x - 1$

$y = \frac{7}{2}x - \frac{1}{2}$

grad $= \frac{7}{2}$, y int $= -\frac{1}{2}$

2) Simplify $\frac{\sqrt{32}}{\sqrt{8}}$ $\div\sqrt{8}$ $\div\sqrt{8}$ $= \frac{\sqrt{4}}{1} = \frac{2}{1} = 2$

$\sqrt{\frac{32}{8}}$

3) Factorise fully: $2T^2 - 14T + 24$

$(2T - 8)(T - 3)$

$2T^2 - 6T - 8T + 24$

Today's Learning:

To solve linear equations.

Challenge

Solve this equation for b:

$2(b + 4) = b - 7$

$2b + 8 = b - 7$

$-b \quad -b$

$b + 8 = -7$

$-8 \quad -8$

$b = -15$

Solving Linear Equations

Always do the same to both sides.

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

$10h - 50 = 6 - 2h$

$+2h \quad -6$

$10h - 56 = -2h$

$-10h \quad -10h$

$-56 = -12h$

$\div -12 \quad \div -12$

$\frac{-56}{-12} = h$

$\frac{-56}{-12} = \frac{28}{6} = \frac{14}{3}$

$h = \frac{14}{3}$

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

$\times 10$ (multiply every term)

$m + 30 = 20 - 50m$

$-m \quad -m$

$30 = 20 - 51m$

$-20 \quad -20$

$10 = -51m$

$\div -51 \quad \div -51$

$m = \frac{10}{-51} = \frac{-10}{51}$

Starter

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

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

$5T - 2 = 4T - 8$

$-4T \quad -4T$

$5T = 4T - 6$

$-4T \quad -4T$

$T = -6$

3) Simplify $\sqrt{108}$

$= \sqrt{36} \times \sqrt{3}$

$= 6\sqrt{3}$

$108 = 2 \times 54$

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

$= \frac{5c^2}{c}$

$= 5c$

$3 \times \frac{1}{6} = \frac{3}{6}$

Today's Learning:

To solve algebraic inequations.

Solving Inequations

< means less than

> means greater than

≤ means less than or equal to

≥ means greater than or equal to

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

Challenge

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

$-4T + 1 < -2T$

$+4T \quad +4T$

$1 < 2T$

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

$-1 \quad -1$

$-4T < -2T - 1$

$+2T \quad +2T$

$-2T < -1$

$\div -2 \quad \div -2$

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

$T > 0.5$

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

$2a+7>-3$

$2a>-10$

$a>-5$

2) $-2x + 12 \quad 8$

$-2x \leq -4$

$-x \leq -2$

$x \geq 2$

Solve these inequations:

a) 3w - 3 > 2w + 7 $w>10$

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

Starter

1) Factorise $m^2 - 11m + 24$ $(m-8)(m-3)$

2) Simplify: $\frac{3b}{4a} \times \frac{2a}{b} = \frac{6ab}{4ab} = \frac{3ab}{2ab} = \frac{3}{2}$

3) Find the gradient of the straight line joining (-2, 4) and (1, 7).

$\text{grad} = \frac{y_2-y_1}{x_2-x_1} = \frac{7-4}{1-(-2)} = \frac{3}{3} = 1$

4) Simplify: $\frac{2e^3 \times 3e^2}{6e^4}$

$= \frac{6e^5}{6e^4} = \frac{e^5}{e^4} = e^1 = e$

(a) $2a+18 \leq 12+4a$ $a \geq 3$

(b) $14-3x > x+6$ $x<2$

(c) $3(p-2) \geq 5p-10$ $p \leq 2$

(d) $7(2-d) \leq 2(d-12)$ $d \geq 38/9$

(e) $4(3-4h) < 12+h$ $h>0$

(f) $2(2y-1)-8 > 10(1+y)$

(g) $16-3k < 20-k$ $k>-2$

(h) $3(2-y) > 2(1+3y)-7$ $y < \frac{11}{9}$