

Solving equations:

$$\frac{b-3}{4} - \frac{3b-5}{8} = \frac{2b-4}{5}$$

1. Put brackets around all numerators.

$$\frac{(b-3)}{4} - \frac{(3b-5)}{8} = \frac{(2b-4)}{5}$$

2. Clear all fractions by multiplying by the common denominator and then simplifying

$$\frac{40(b-3)}{4} - \frac{40(3b-5)}{8} = \frac{40(2b-4)}{5}$$

(i.e. $40/4 = 10$)

$$10(b-3) - 5(3b-5) = 8(2b-4)$$

3. Expand all brackets.

$$10b - 30 - 15b + 25 = 16b - 24$$

4. Collect like terms

$$10b - 15b - 16b = -24 + 30 - 25 \\ -21b = -29$$

If the equation is linear (x)

5. Isolate the variable
6. Solve

$$b = \frac{29}{21}$$

If the equation is a quadratic (x^2)

$$2x^2 + 6x = 56 \text{ (N.B. different question)}$$

4. Put the equation in standard form ($=0$)

$$2x^2 + 6x - 56 = 0$$

5. FACTOR

- common factor
- quadratic factoring
- difference of squares
- perfect squares

$$2(x^2 + 3x - 28) = 0 \text{ (Common first)}$$

$$2(x-4)(x+7) = 0$$

6. Set any term containing the variable equal to 0

$$(x-4) = 0 \text{ or } (x+7) = 0$$

7. Solve

$$x = 4 \text{ or } x = -7$$