

2008 Paper 1 Q2.

a  $3(4x+5) - 2(6x+4)$  → Remove the brackets by multiplying.

$$3(4x+5) - 2(6x+4)$$

$$12x + 15 - 12x - 8$$

→ Rearrange like terms together.

$$12x - 12x + 15 - 8$$

$$= \boxed{7}$$

bi The  $a \pm \sqrt{b}$  is a clue to use the  $-b$  formula.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x^2 - 4x + 1 = 0 \Rightarrow \begin{matrix} a=1 \\ b=-4 \\ c=1 \end{matrix}$$

So sub in the values for a, b and c.

$$x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(1)(1)}}{2(1)}$$

→ simplify all the brackets.

$$= \frac{4 \pm \sqrt{16 - 4}}{2}$$

$$= \frac{4 \pm \sqrt{12}}{2}$$

Now deal with the  $\sqrt{12}$

$$\rightarrow \sqrt{12} = \sqrt{6} \cdot \sqrt{2}$$
$$= \sqrt{4} \cdot \sqrt{3}$$

$$= \frac{4 \pm \sqrt{4} \sqrt{3}}{2}$$

← we will use  $\sqrt{4} \cdot \sqrt{3}$  because we can simplify  $\sqrt{4}$ .

$$= \frac{\cancel{4} \pm \cancel{2} \sqrt{3}}{\cancel{2}}$$

→ now divide the 2 into the top line.

$$= \boxed{2 \pm \sqrt{3}}$$