Completing the Square (a≠1)

Example:

$$2x^2 + 8x - 5 = 0$$
$$2[x^2 + 4x] - 5 = 0$$
$$2[(x+2)^2 - 4] - 5 = 0$$
$$2(x+2)^2 - 8 - 5 = 0$$
$$2(x+2)^2 - 13 = 0$$
$$2(x+2)^2 = 13$$
$$(x+2)^2 = \frac{13}{2}$$
$$x + 2 = \pm\sqrt{\frac{13}{2}}$$
$$x = -2 \pm \sqrt{\frac{13}{2}}$$

Remember: Factorise the 'a' coefficient and be really careful when you expand your square brackets.

Evaluate the following by completing the square.

Q1) $2x^2 + 10x - 7 = 0$

Q2) $3x^2 - 18x + 4 = 0$

Q3) $5x^2 - 20x - 3 = 0$

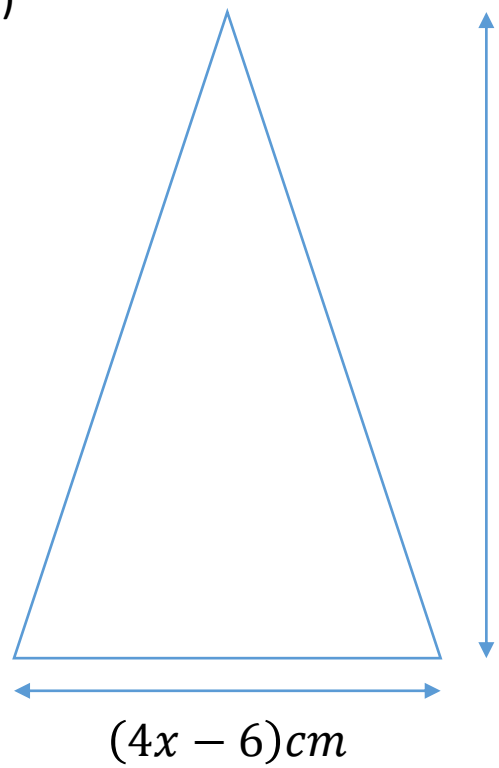
Q4) $2x^2 + 4x + 1 = 0$

Q5) $3x^2 - 11x + 3 = 13x + 7$

Q6) Find the turning point of $y = 4x^2 + 24x - 15$

Q7) Solve $2x^2 + 5x - 8 = 0$
Hint: We will need to use fractions here.

Q8)



If the area of this triangle is $40cm^2$, find the value of x using completing the square.

Ask Absolute-