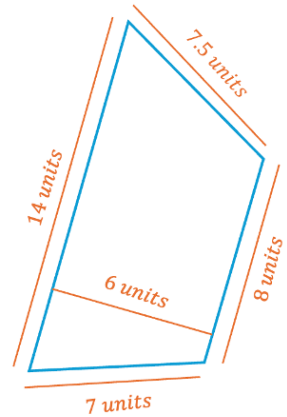
| # | Example Prompt | Type |
|---|---|---|
| 0 | Using a formula, what is the area of the shape?   | Initial Prompt |
| 1 | Trapezium | Categorical |
| 2 | $A = \frac{(a_1 + a_2)b}{2}$ | Fact |
| 3 | $a_1 = 14, a_2 = 8, b = 6$ | Transformation |
| 4 | $A = \frac{\big((14) + (8)\big)(6)}{2}$ | Transformation |
| 5 | $A = 66$ | Routine |
| 6 | Area is 66 $units^2$ | Transformation |

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

$$\equiv 2x(5x + 4) - 3(5x + 4)$$

$$\equiv 10x^2 + 8x - 15x - 12$$

$$\equiv 10x^2 - 7x - 12$$

(1) Break-up double brackets (T)

(2) Multiply single brackets (T)*

(3) Collect like terms (R)*

$$\frac{5}{4} + \frac{1}{3}$$

$\times \frac{3}{3}$ LCM = 12 $\times \frac{4}{4}$

$$= \frac{15}{12} + \frac{4}{12}$$

$$= \frac{19}{12}$$

1. Identify the numerator (cat)*
2. Identify the denominator (cat)*
3. Decide if the fractions are in a form ready to be added (cat)
4. Find the Lowest Common Multiple (R)*
5. Transform a fraction so it is equivalent (T)*
6. Add fractions with the same denominators (T)*

Solve this equation, giving your answers in exact form and rounding to 2 decimal places

$$2x^2 - 10x = -3$$

$$2x^2 - 10x = -3$$

$$+3 \qquad +3$$

$$2x^2 - 10x + 3 = 0$$

$a = 2$
$b = -10$
$c = 3$

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

$$x = \frac{-(-10) \pm \sqrt{(-10)^2 - 4 \times 2 \times 3}}{2 \times 2}$$

$$x = \frac{5 + \sqrt{19}}{2} \quad \text{or} \quad x = \frac{5 - \sqrt{19}}{2}$$

$$= 4.6794\ldots \qquad = 0.3205\ldots$$

$$= 4.68 \text{ (2dp)} \qquad = 0.32 \text{ (2dp)}$$

(1) Recognise a quadratic equation (Cat)

(2) Know to rearrange a quadratic so it equals 0 (F)*

(3) Rearrange an equation to equal 0 (T)*

(4) Recognise when to use the quadratic formula (Cat)

(5) Identify the values of a, b and c (T)

(6) Recall the quadratic formula (F)

(7) Substitute into the quadratic formula (T)

(8) Evaluate the quadratic formula using a calculator (T)

(9) Convert to decimals on a calculator (T)*

(10) Round to 2 decimal places (T)*