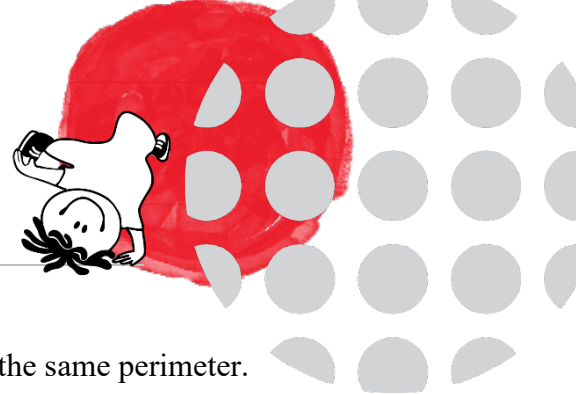
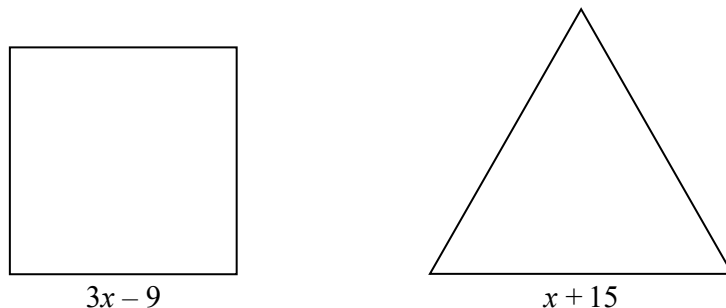


# Some Fun Cross Topic Questions

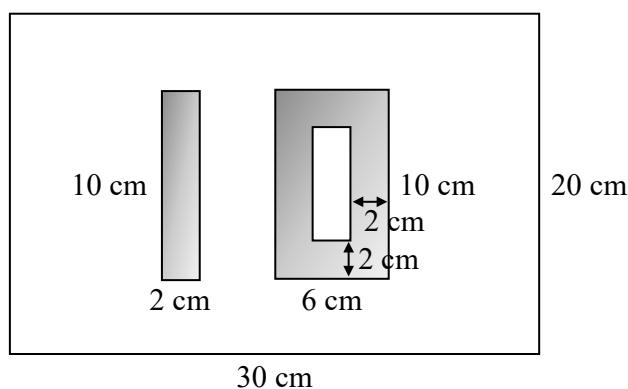


1. The square and the equilateral triangle drawn below have the same perimeter.



Determine the area of the square.

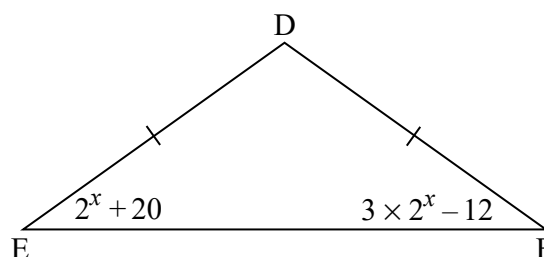
2. A rectangular dart board measuring 30 cm by 20 cm, which is not drawn to scale, has the number 10 shaded on it. A dart is thrown such that it lands somewhere on the board.



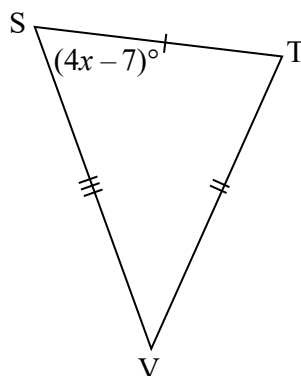
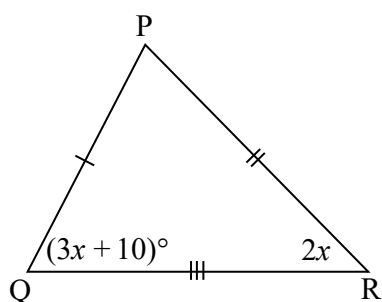
Determine the probability that the dart lands in the shaded area. Give your answer as a percentage, correct to one decimal place.

3. In the diagram  $\hat{E} = (2^x + 20)^\circ$  and  $\hat{F} = (3 \times 2^x - 12)^\circ$ .

Determine the value of  $\hat{D}$ .



4.



Determine the size of  $\hat{T}$ .

5. Given  $y = \frac{x^2 - 9}{x^2 + 8x + 15} \times \frac{6x^2 + 24x - 30}{2x - 6}$



5.1 Simplify  $\frac{x^2 - 9}{x^2 + 8x + 15} \times \frac{6x^2 + 24x - 30}{2x - 6}$

5.2 For what values of  $x$  is  $\frac{x^2 - 9}{x^2 + 8x + 15} \times \frac{6x^2 + 24x - 30}{2x - 6}$  undefined?

5.3 Draw the graph of  $y = \frac{x^2 - 9}{x^2 + 8x + 15} \times \frac{6x^2 + 24x - 30}{2x - 6}$  showing the intercepts with the axes as well as any excluded points.

6. In the diagram  $AC = 2x + 1$ ,  $AB = 2x - 4$  and  $BC = x + 3$ .

Determine the length of  $BD$ .

