Mathematics

Maximum and Minimum Area

Mrs Buckmire

Try this

The width and height of a rectangle sum to 10 cm.

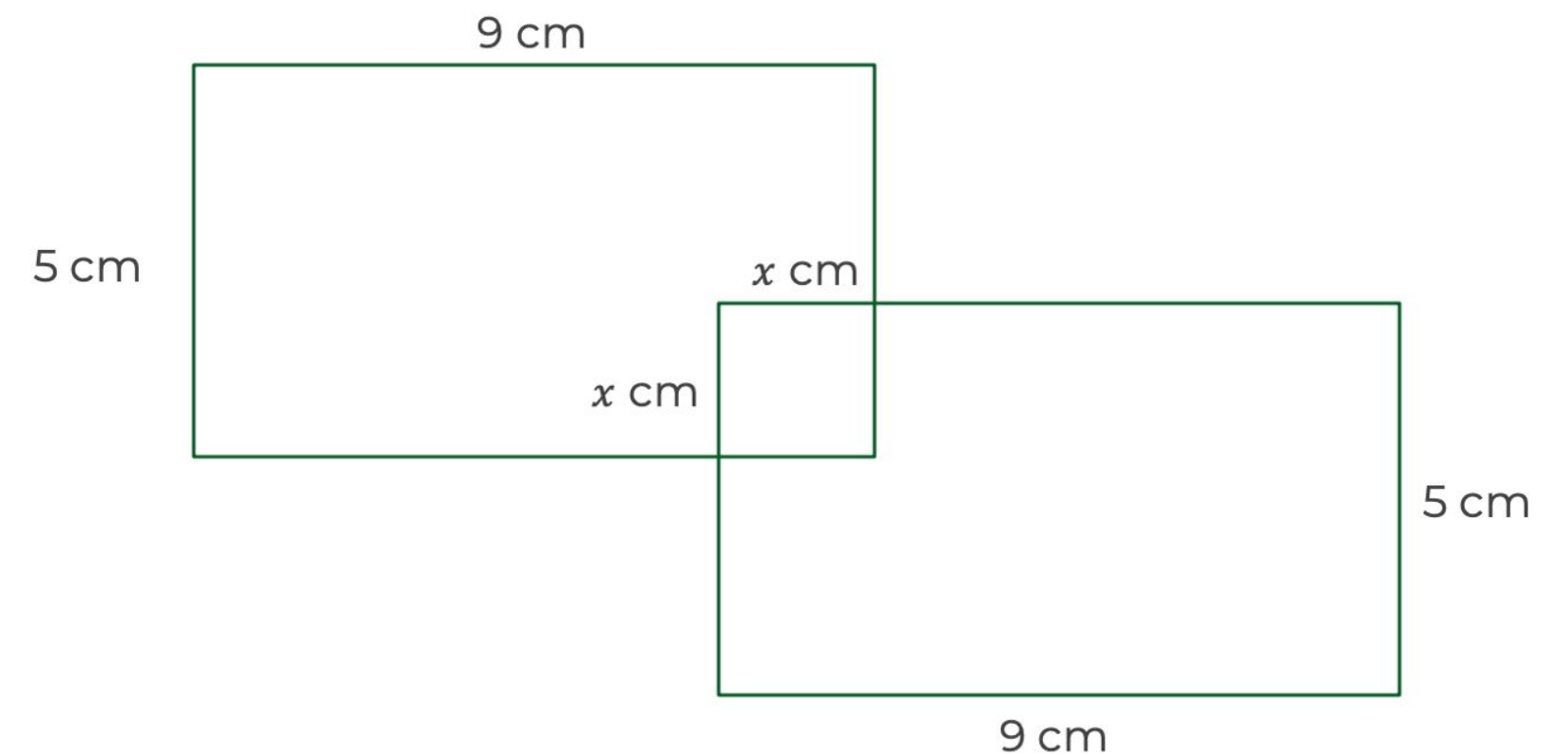What is the greatest possible area? How do you know?

Independent task

Two 9 cm by 5 cm rectangles overlap to making the shape of a square.

Can you describe the total area as a quadratic expression?

- Can you sketch the expression as a graph?

- What happens when x is equal to 5 cm?

- What happen when x is greater than 5 cm?

- What is the maximum area?

- What is the minimum area?

Explore

Does the area of these shapes have an upper or lower bound? What are they?

A rectangle that has width 3 cm greater than its height

A triangle where the base and height sum to 12 cm

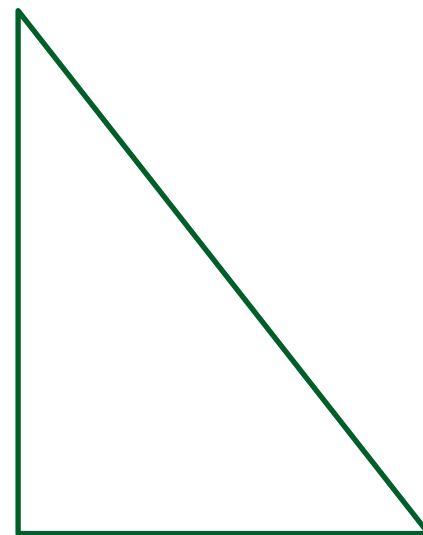A parallelogram where the height is three times its width

Explore (Support)

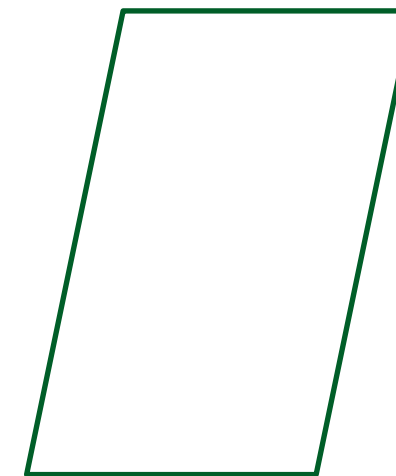Does the area of these shapes have an upper or lower bound? What are they?

A rectangle that has width 3 cm greater than its height

A triangle where the base and height sum to 12 cm

A parallelogram where the height is three times its width

Hint: Plot for values of x>0.