### 29th July

#### AB and AC are tangents.
Find x.

#### Simplify
\[
\frac{x^2 + 3x - 4}{x^2 - 8x + 7}
\]

#### Here is a rectangle and a regular octagon.

The length of the rectangle is 12cm longer than the width of the rectangle. The perimeter of the rectangle is equal to the perimeter of the octagon. 5 of the regular octagons are used to make a shape.

The perimeter of this shape is 132cm.

Work out the area of the rectangle.

#### Simplify
\[2\sqrt{3} \times 3\sqrt{300}\]