Pythagoras' Theorem, Enlargement and Similarity

Year 9 Term 5

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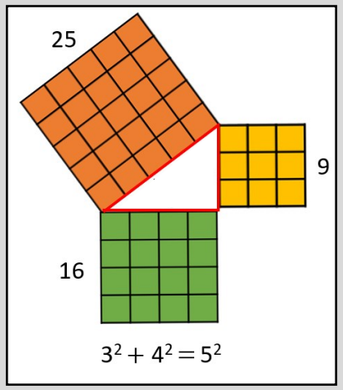
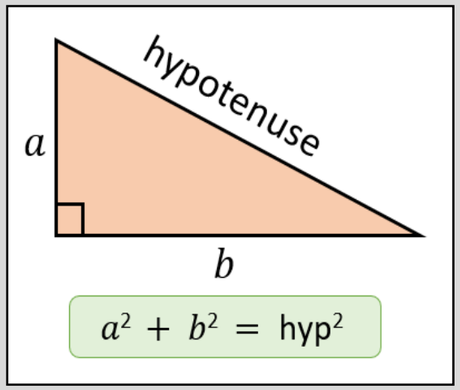
(1) Key Terms

Centre of Enlargement	The **point** from which an enlargement is made.
Scale Factor	The value used to multiply or divide a shape's **dimensions** during the process of **enlargement**.
Enlargement	Making a shape **bigger** or **smaller**.
Hypotenuse	The **longest side** in a right angled triangle. It is <u>always</u> opposite the right angle.
Square Root	The **inverse operation** of squaring a number. For example, **√16 = 4** and **4^2 = 16**
Corresponding	Means a matching pair.

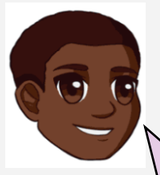
(2) Pythagoras' Theorem

The square of the hypotenuse of a **right-angled triangle** is equal to the sum of the squares of the other sides.





(3) Similar Shapes

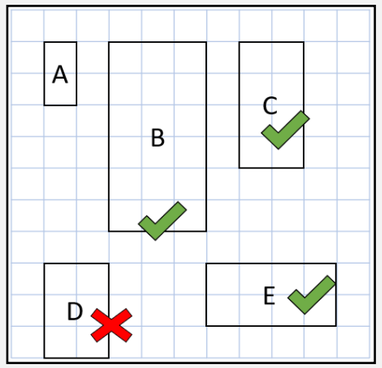


Shape **A** is similar to shape **B**, **C** and **E**.

1) The side lengths are in the **same ratio**.

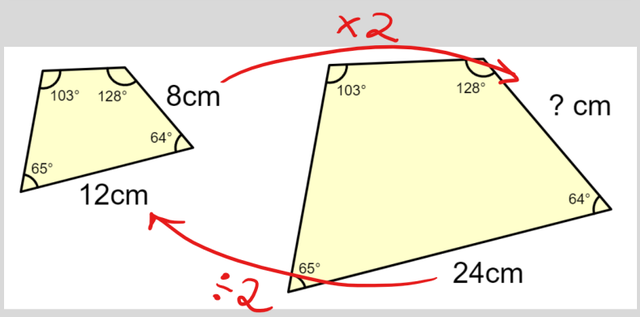
2) All corresponding **angles are equal**.

3) They are **enlargements**.



(4) Linear Scale Factor

Scale Factor = $\frac{\text{Large Corresponding Side}}{\text{Small Corresponding Side}}$



Scale Factor = $\frac{24}{12}$ = 2

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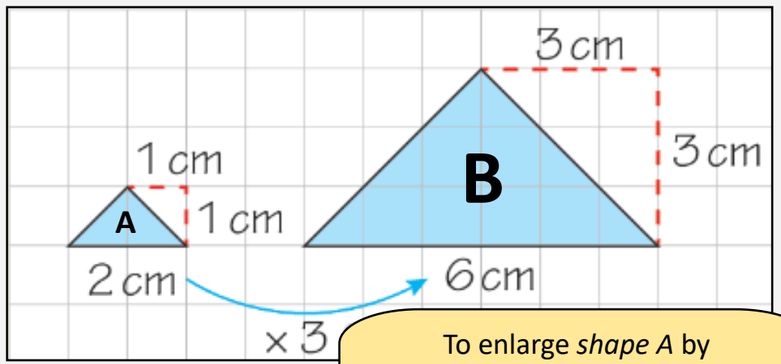
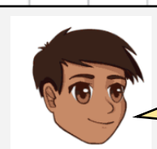
(5) Enlargement





To enlarge *shape A* by **scale factor 3**. Multiply all the dimensions of the sides of the shape by 3.

The ratio of the sides of *shape A* to *shape B* is **1:3**. The size of each of the corresponding angles remain the same.

(6) Enlargement from a Point

To describe an **Enlargement** from a point, you need to know:

- The **Centre of Enlargement** (2,1)
- The **Scale Factor** (SF = 2)