SIMILAR TRIANGLES

Two shapes are similar if one is an enlargement of the other.

ie. the sides are in the same ratio
the angles are identical.

Examples

(1)

(a) How do we know these triangles are similar?

\[ \hat{A} = 85^\circ \text{ and } \hat{Z} = 65^\circ \]

Since the triangles have the same angles, they are similar.

(b) Find the length \( XY \)

\[ \frac{XY}{6} = \frac{12}{8} \quad \text{from same triangle as } XY \]

\[ (x6) \quad (x6) \]

\[ XY = \frac{12}{8} \times 6 = \frac{9}{1} \]

= 9 cm

(c) Find \( AC \)

\[ \frac{AC}{7} = \frac{8}{12} \]

\[ (x7) \quad (x7) \]

\[ AC = \frac{8}{3} \times 7 = \frac{14}{3} = 4 \frac{2}{3} \text{ cm} \]
Find the length $d$.

\[
\frac{d}{12} = \frac{8}{10}
\]

\[\times 12\]

\[d = 12 \times \frac{8}{10} = \frac{48}{5} = 9.6 \text{ cm}\]

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Find $AC$.

\[
\frac{x}{x+3} = \frac{6}{10}
\]

\[10x = 6(x+3)\]

\[10x = 6x + 18\]

\[4x = 18\]

\[x = 4.5 \text{ cm}\]