

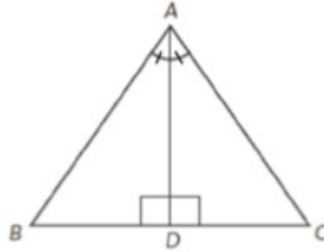
### Congruent and Similar Triangles

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1) Which of the following pairs of triangles is not necessarily congruent?



2) Consider the following diagram.



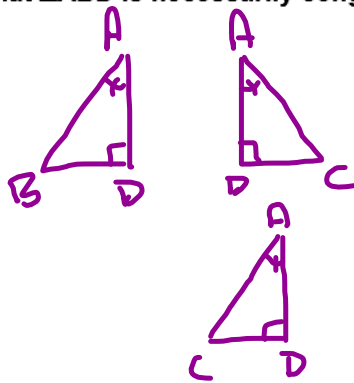
What theorem can be used to show that  $\triangle ABD$  is necessarily congruent to  $\triangle ACD$ ?

A) SSS

B) SAS

C) ASA

~~D) AA~~ ←

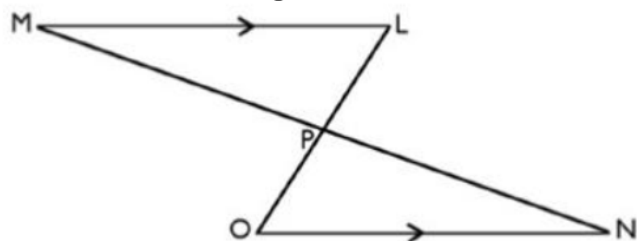


$$\begin{aligned} \angle A &\cong \angle A \\ \overline{AD} &\cong \overline{AD} \\ \angle D &\cong \angle D \end{aligned}$$

3) Which of the following pairs of triangles is necessarily congruent?



- 4) Point P is the midpoint of line segment MN. Segment ML is parallel to segment ON.  
Triangles  $\triangle LMP$  and  $\triangle ONP$  are congruent.



Show that triangles  $\triangle LMP$  and  $\triangle ONP$  are congruent. Remember to justify each of your statements.

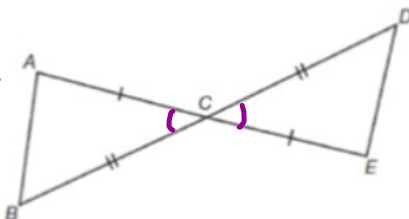
\_\_\_\_\_  $\cong$  \_\_\_\_\_

\_\_\_\_\_  $\cong$  \_\_\_\_\_

\_\_\_\_\_  $\cong$  \_\_\_\_\_

$\triangle LMP \cong \triangle ONP$  by \_\_\_\_\_

5) Consider the following diagram.

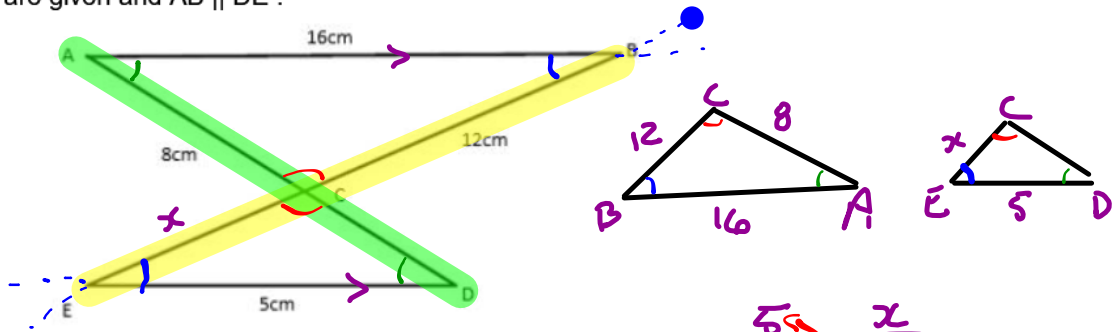


Show that  $\triangle ABC$  is necessarily congruent to  $\triangle EDC$ .

$$\begin{array}{l} \underline{\overline{BC}} \cong \underline{\overline{CD}} \quad \text{given} \\ \underline{\overline{AC}} \cong \underline{\overline{CE}} \quad \text{given} \\ \underline{\angle ACB} \cong \underline{\angle DCE} \quad \text{VoA} \end{array}$$

$\triangle ABC \cong \triangle EDC$  by SAS

6) The diagram below illustrates two triangles in which the measurements of some sides are given and  $AB \parallel DE$ .



What is the length of segment BE?

- a) 2.5 cm
- b) 3.75 cm
- c) 14.5 cm
- d) 15.75 cm

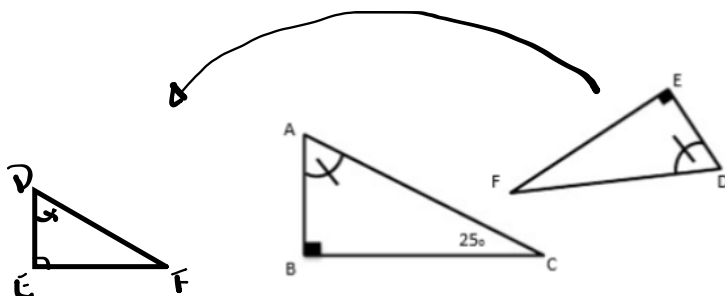
$$\frac{5}{16} \leftrightarrow \frac{x}{12}$$

$$x = \frac{60}{16} = 3.75$$

$$\overline{BE} = 3.75 + 12 = 15.75$$

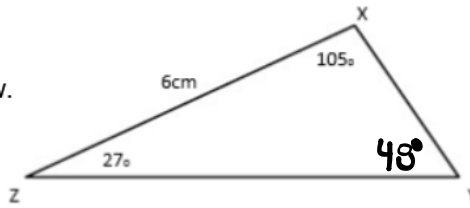
7) The following information is given about right triangles ABC and DEF:

What is the measure of  $\angle D$



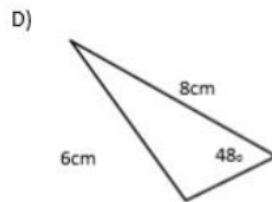
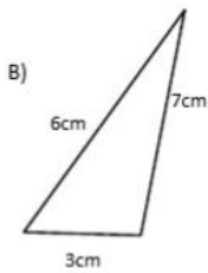
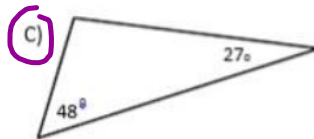
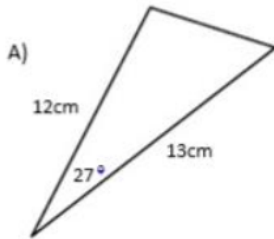
$$\angle A = 180^\circ - 90^\circ - 25^\circ = 65^\circ = \angle D$$

8) Triangle XYZ is shown below.



$$\begin{aligned} \angle Y &= 180^\circ - 105^\circ - 27^\circ \\ &= 48^\circ \end{aligned}$$

Which of the triangles below is necessarily similar to triangle XYZ?



AA  
~~SAS prop~~  
~~SSS prop~~



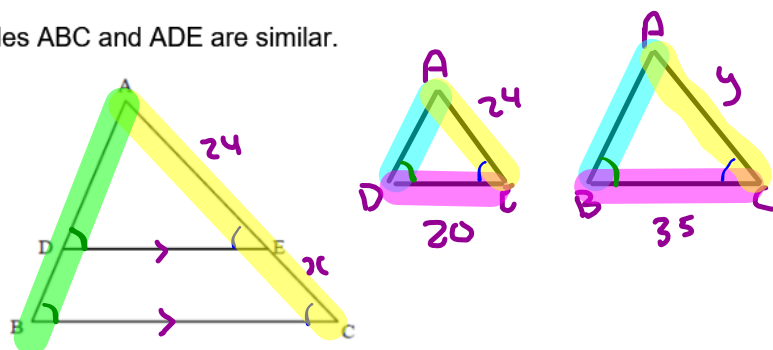
9) In the figure below, triangles ABC and ADE are similar.

DE is parallel to BC,

$mDE = 20$  m,

$mBC = 35$  m

and  $mAE = 24$  m.



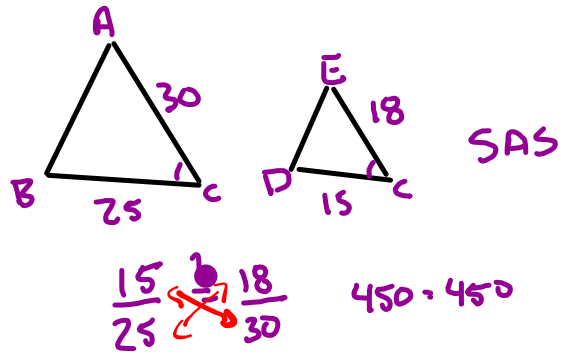
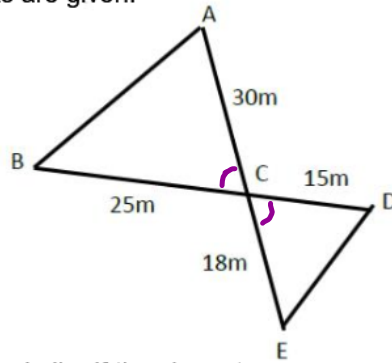
What is the length of segment EC?

$$\textcircled{1} \overline{AC} : \frac{20}{35} \rightarrow \frac{24}{AC} \quad \overline{AC} = 42 \text{ m}$$

$$\textcircled{2} \overline{EC} = 42 - 24 = 18 \text{ m}$$

10) In the diagram below, BD and AE intersect at C  
 Other measurements are given:

- $mAC = 30m$
- $mBC = 25m$
- $mCD = 15m$
- $mCE = 18m$



- A) Two triangles are similar if they have two congruent corresponding angles. (AA)
- B) Two triangles are similar if they have corresponding sides that are proportional. (SSS)
- C) Two triangles are similar if they have corresponding proportional contained between two congruent angles. (ASA)
- D) Two triangles are similar if they have a congruent angle contained between the corresponding sides that are proportional. (SAS)**

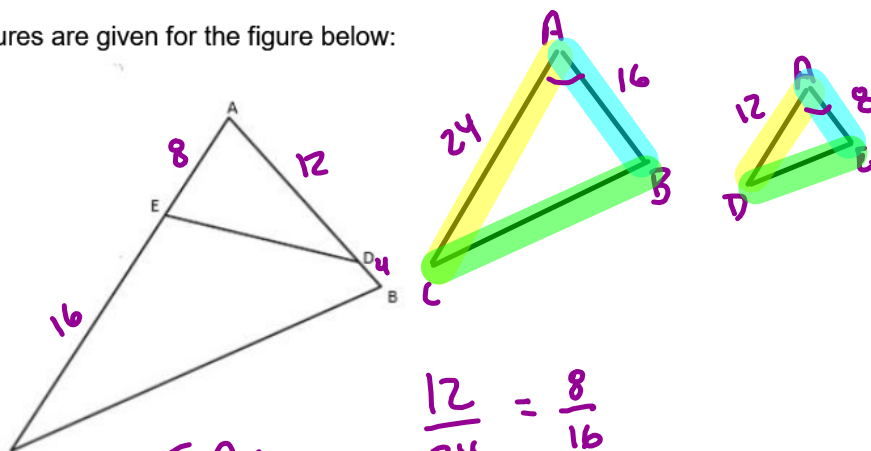
11) The following measures are given for the figure below:

$mAD = 12\text{cm}$

$mDB = 4\text{cm}$

$mAE = 8\text{cm}$

$mEC = 16\text{cm}$



Is triangle  $\triangle ABC$  similar to  $\triangle AED$ ? **SAS**

30° - 60° - 90°

