

1 A

2 A

3 C

4 A

5 A

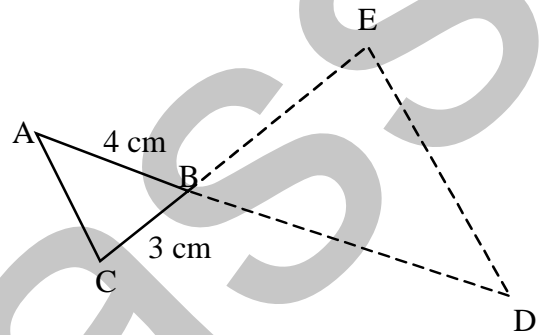
6 D

7 D

8 A

9 A

10 Work : (example)



Statements

1.  $\frac{m \overline{AB}}{m \overline{BD}} = \frac{m \overline{BC}}{m \overline{BE}}$

2.  $\angle ABC \cong \angle DBE$

3.  $\triangle ABC \sim \triangle DBE$

Justifications

Effectively :  $\frac{4}{8} = \frac{3}{6}$

Vertically opposite angles are congruent.

If two sides of one triangle are proportional to two sides of another triangle and the contained angles are congruent, then the two triangles are similar.

11 B

12 A

13 C

14 The measure of angle DAF is 52 degrees.

15 C

16 B

17 C

MS. Nassif

Name : \_\_\_\_\_

Group : \_\_\_\_\_

Date : \_\_\_\_\_

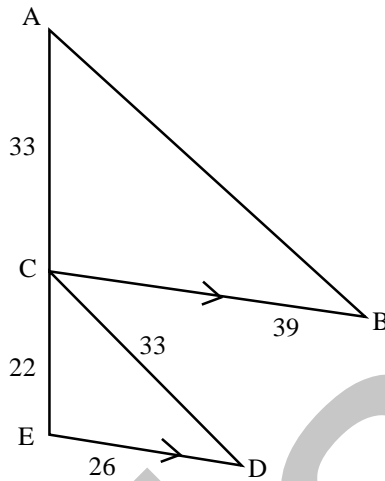
**568416 - Mathematics**

**Question Booklet**

MS.

Ms. Narasim

1 In the following diagram,  $\overline{CB}$  is parallel to  $\overline{ED}$  and  $AE$  forms a straight line.



From the diagram, which of the following theorems could be used to prove that  $\triangle ABC$  is similar to  $\triangle CDE$ ?

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

2

In the adjacent diagram

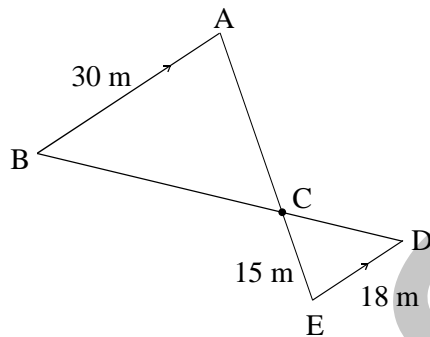
$\overline{BD}$  and  $\overline{AE}$  intersect at C

$\overline{AB} \parallel \overline{DE}$

$m \overline{AB} = 30 \text{ m}$

$m \overline{ED} = 18 \text{ m}$

$m \overline{EC} = 15 \text{ m}$

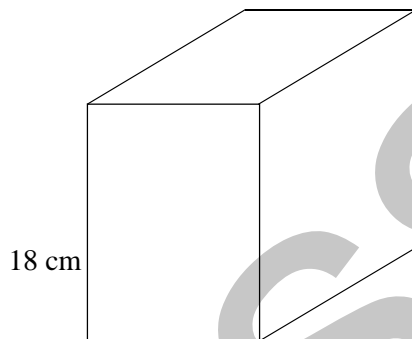
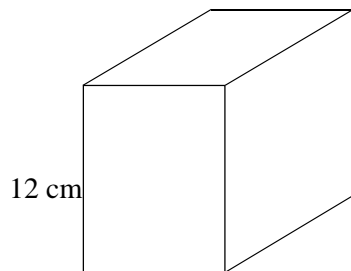


Which of the following statements could be used to prove that triangle ABC is similar to triangle EDC?

- A) Two triangles with corresponding angles congruent are similar. (AA)
- B) Two triangles whose measures of corresponding sides are proportional, are similar. (SSS)
- C) If two angles and the contained side of one triangle are proportional to two angles and the contained side of another triangle, then the triangles are similar. (ASA)
- D) Two triangles having a congruent angle contained between the corresponding sides of proportional lengths are similar. (SAS)

3

Two similar rectangular prisms are shown below.



Which of the following is TRUE?

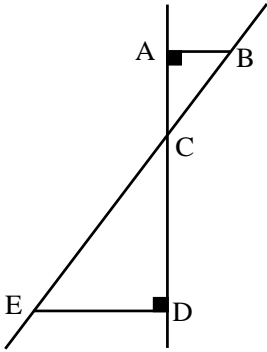
- A) The ratio of the total areas is 2:3.
- B) The ratio of the volumes is 4:9.
- C) The ratio of the widths is 2:3.
- D) The ratio of the perimeters of the tops is 4:9.

4

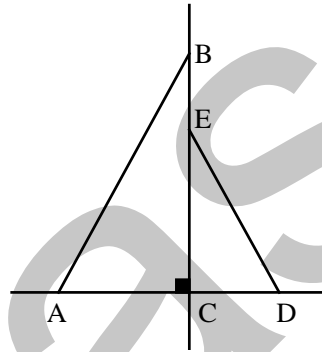
In the four following figures, lines AD and BE intersect at point C.

In which one of the following cases are triangles ABC and DEC necessarily similar?

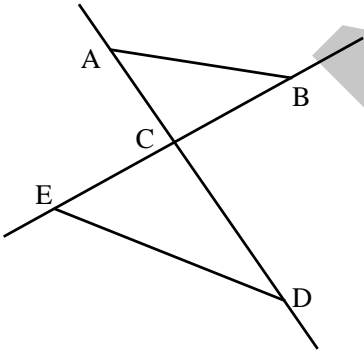
A)



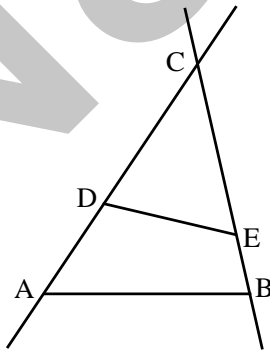
C)



B)

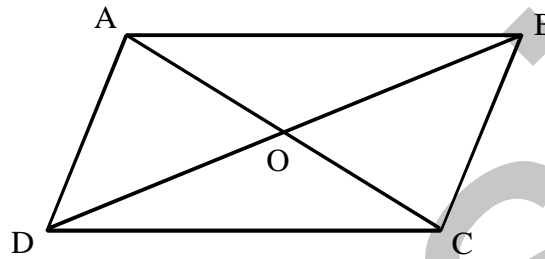


D)





- 5 ABCD is a parallelogram whose diagonals  $\overline{AC}$  and  $\overline{BD}$  intersect at O.



The following proof shows that triangles AOD and COB are congruent.

Statements	Reasons
1. $m \overline{AO} = m \overline{CO}$	1. The diagonals of a parallelogram bisect each other.
2. $m \angle AOD = m \angle COB$	2. Vertically opposite angles are congruent.
3. $m \overline{DO} = m \overline{BO}$	3. The diagonals of a parallelogram bisect each other.
4. $\triangle AOD \cong \triangle COB$	4. ?

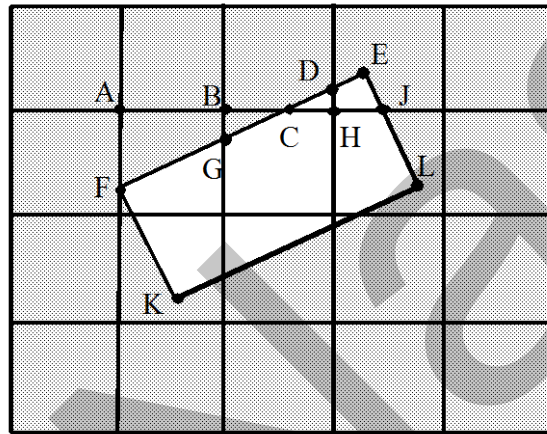
Which of the following reasons completes the proof in step 4?

- A) Two triangles with a congruent angle between two congruent corresponding sides are congruent.
- B) Two triangles with all three corresponding sides congruent are congruent.
- C) Two triangles with two corresponding angles and the contained side congruent are congruent.

D) Two triangles with two corresponding angles congruent are congruent.

6 A rectangular rug lies on a bathroom floor made of ceramic tiles. These tiles are isometric squares.

In the following diagram, the rug is represented by rectangle EFKL.



Given the above diagram, which of the following statements are TRUE?

1. Triangle BCG is similar to triangle HCD.
2. Triangle CDH is similar to triangle CJH.
3. Triangle BCG is similar to triangle ACF.
4. Triangle ACF is similar to triangle ECJ.

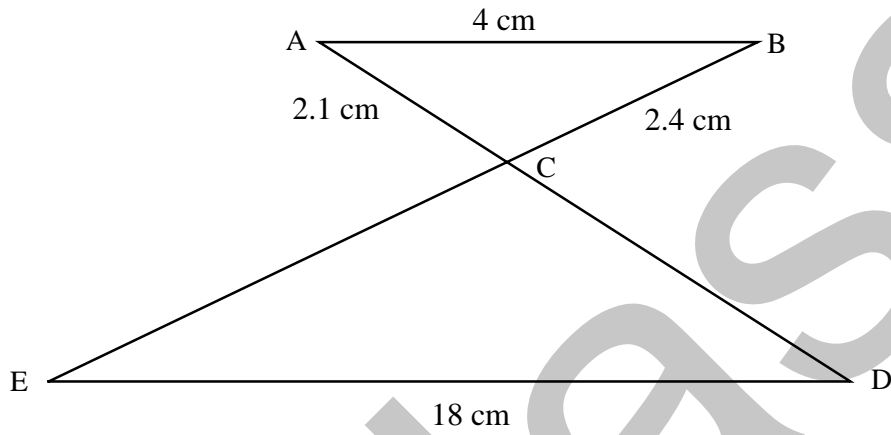
A) 1 and 3 only

C) 1, 2 and 4 only

B) 2 and 3 only

D) 1, 2, 3 and 4

- 7 The diagram below illustrates two triangles in which the measurements of some sides are given and  $\overline{AB} \parallel \overline{DE}$ .

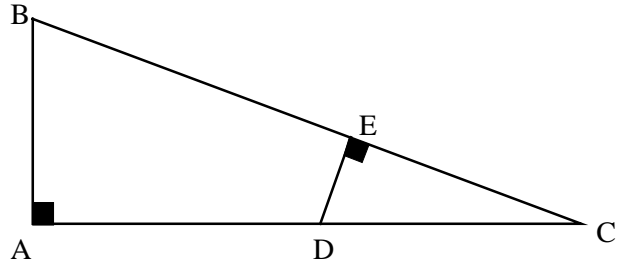


What is the length of segment  $BE$ ?

- A) 9.45 cm                      C) 11.45 cm  
B) 10.80 cm                    D) 13.20 cm

8

Triangles ABC and DEC are similar.



Which of the following statements is true?

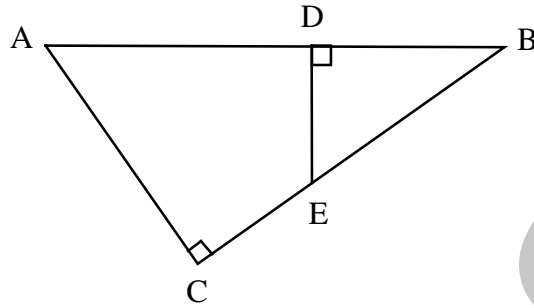
A)  $\frac{m \overline{ED}}{m \overline{AB}} = \frac{m \overline{EC}}{m \overline{AC}}$

C)  $\frac{m \overline{DC}}{m \overline{BC}} = \frac{m \overline{AB}}{m \overline{ED}}$

B)  $\frac{m \overline{EC}}{m \overline{BC}} = \frac{m \overline{DC}}{m \overline{AC}}$

D)  $\frac{m \overline{BC}}{m \overline{DC}} = \frac{m \overline{ED}}{m \overline{AB}}$

- 9 Martine owns a plot of land (ABC) in the form of a triangle, on which she builds a fence (DE) that creates two similar triangles. The diagram below illustrates this situation.



Which of the following statements is true?

A)  $\frac{m \overline{BE}}{m \overline{AB}} = \frac{m \overline{BD}}{m \overline{BC}}$

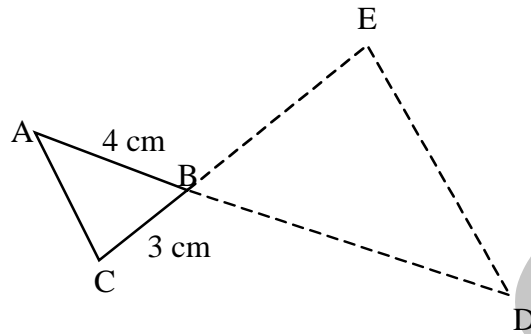
C)  $\frac{m \overline{DE}}{m \overline{AC}} = \frac{m \overline{BD}}{m \overline{AB}}$

B)  $\frac{m \overline{BD}}{m \overline{AB}} = \frac{m \overline{BE}}{m \overline{BC}}$

D)  $\frac{m \overline{DE}}{m \overline{AC}} = \frac{m \overline{BE}}{m \overline{BC}}$

10

Given triangle ABC illustrated below :



Segment AB is extended to form segment BD which is twice the measure of AB. Segment CB is also extended to form segment BE which is twice the measure of CB.

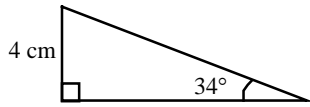
Prove that triangles ABC and DBE are similar.

Show your work.

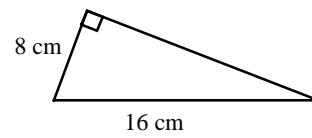
11

Two of the right triangles shown below are similar.

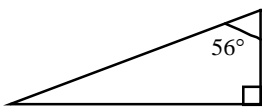
1.



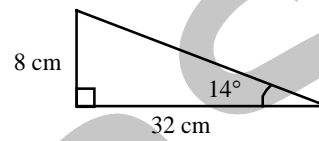
2.



3.



4.



Which two triangles are similar?

A) 1 and 2

C) 2 and 4

B) 1 and 3

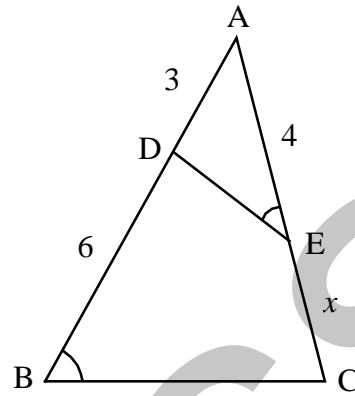
D) 3 and 4

12 In triangles ABC and AED shown on the right,  
 $\angle AED \cong \angle ABC$ .

$m \overline{AD} = 3 \text{ cm},$

$m \overline{DB} = 6 \text{ cm},$

$m \overline{AE} = 4 \text{ cm}.$



Which of the following is the measure of  $\overline{EC}$ ?

A) 2.75 cm

C) 8 cm

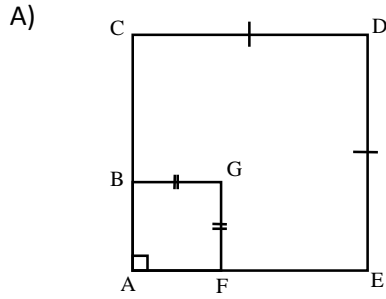
B) 4.5 cm

D) 12 cm

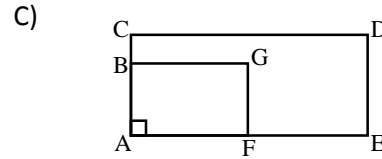


13

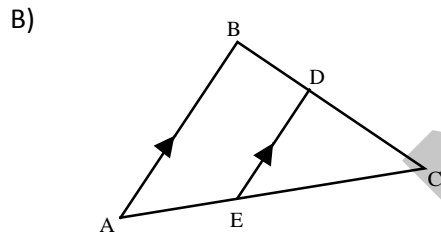
Each diagram compares two figures. Which statement is NOT necessarily true?



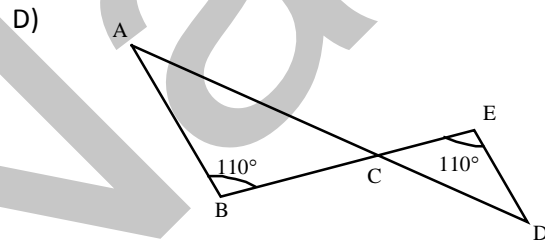
Square ACDE is similar to square ABGF.



Rectangle ACDE is similar to rectangle ABGF.

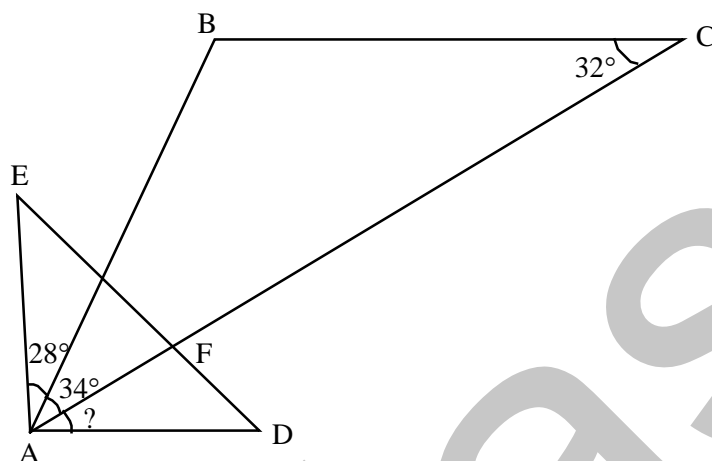


Triangle ABC is similar to triangle EDC.



Triangle ABC is similar to triangle DEC.

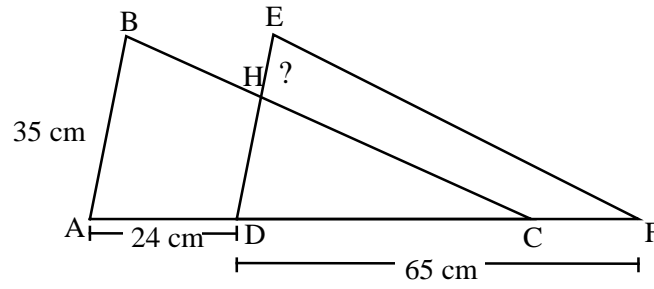
- 14 Triangles ABC and DAE, shown below, are similar.



What is the measure of angle DAF?

15

In the figure below, triangles ABC and DEF are congruent. Triangle ABC and DHC are similar.



What is the measure of  $\overline{EH}$ , rounded to the nearest unit?

A) 55 cm

C) 13 cm

B) 22 cm

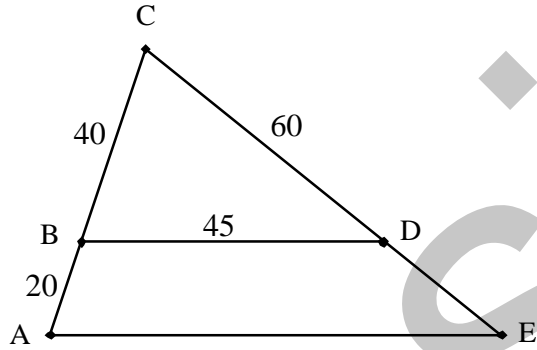
D) 11 cm

16

Five towns (A, B, C, D and E) on a map are connected by roads as illustrated in the diagram.

The distance between these towns is calculated in km.

Road BD is parallel to road AE.



What is the distance between town A and town E?

A) 90 km

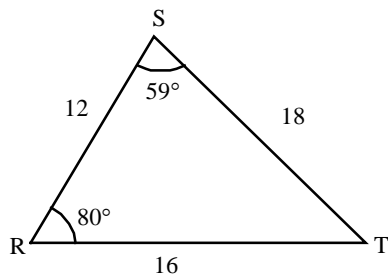
C) 30 km

B) 67.5 km

D) 22.5 km

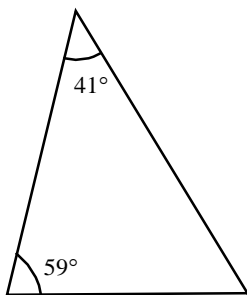
17

Triangle RST is shown on the right.

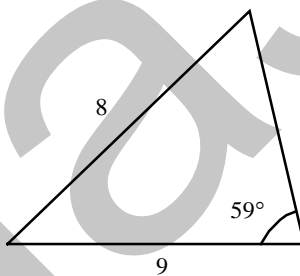


Which of the triangles below is NOT necessarily similar to triangle RST?

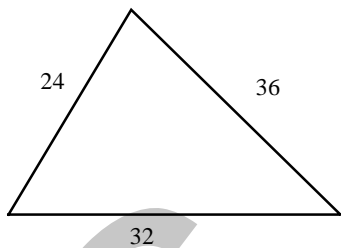
A)



C)



B)



D)

