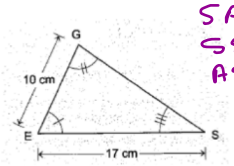
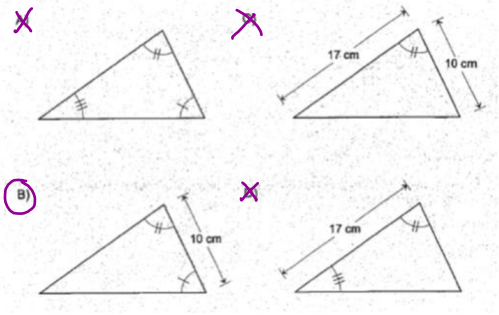
1. Consider triangle EGS represented below.



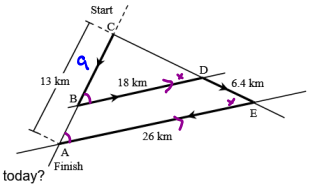
SAS
SSS
ASA

Which of the triangles represented below is necessarily congruent to triangle EGS?

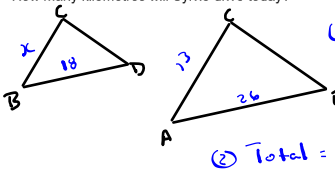


B)

2. Sylvio delivers mail for Canada. Leaving from point C, Sylvio must drive along roads CB, BD, DE and EA in succession, ending his mail run at point A. Road BD is parallel to road AE.



How many kilometres will Sylvio drive today?

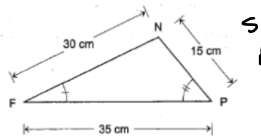


① $\frac{x}{13} = \frac{18}{26}$

$\overline{CB} = 9$ km

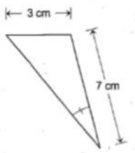
② Total = 9 + 18 + 6.4 + 26 = 59.4 km

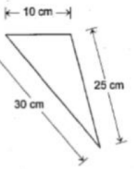
3. Consider triangle FNP represented below.



SSS prop
SAS prop
AA

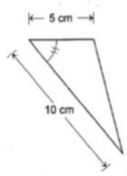
Which of the triangles represented below is necessarily similar to triangle FNP?

A) 

B) 

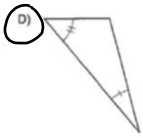
$\frac{10}{15} = \frac{25}{30}$

$300 \neq 375$

C) 

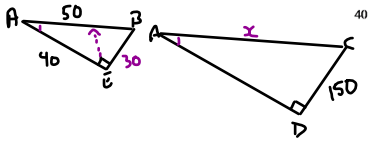
$\frac{5}{15} \stackrel{?}{=} \frac{10}{35}$

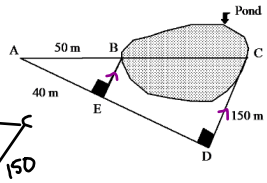
$150 \neq 175$

D) 

AA

4. Find the length BC of the pond.





① $a^2 + b^2 = c^2$

$40^2 + b^2 = 50^2$

$\sqrt{b^2} = 2500 - 1600 \; \sqrt{900}$

$b = 30$

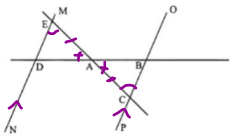
② $\frac{30}{150} = \frac{50}{x}$

$\overline{AC} = 250m$

③ $\overline{BC} = 250 - 50$

$= 200m$

5. In the figure below, line MN is parallel to line OP, lines EC and BD intersect at point A and $\overline{AE} \cong \overline{AC}$.



The following proof can be used to show that triangles ADE and ABC are congruent.

	Statement		Justification
A	1. $\angle AED \cong \angle ACB$	1.	If a transversal line cuts two parallel lines, then the alternate interior angles are congruent.
S	2. $\overline{AE} \cong \overline{AC}$	2.	Given
A	3. $\angle EAD \cong \angle CAB$	3.	Vertical angles formed by two intersecting lines are congruent. VOA
	4. Δ ADE $\cong \Delta$ ABC	4.	? ASA

Which of the following can be used to justify the fourth statement of this proof? (4pts)

(A) If two angles and the included side of one triangle are congruent to two angles and the included side of another triangle, then the triangles are congruent (ASA)

B) If three sides of one triangle are congruent to three sides of another triangle, then the triangles are congruent (SSS)

C) If two sides and the included angle of one triangle are congruent two sides and the included angle of another triangle, then the triangles are congruent (SAS)

~~D~~ If two angles of one triangle are congruent to two angles of another triangle, then the triangle are similar (AA)

6. In the figure below, line segment DG intersects triangle EFH.

In addition:

$\overline{HC} // \overline{DG} // \overline{EF}$

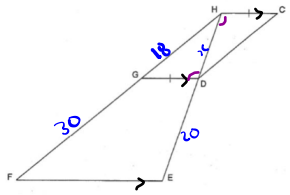
$m\overline{HC} = m\overline{DG}$

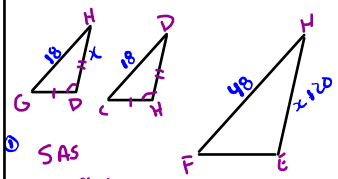
$m\overline{CD} = 18cm$

$m\overline{DE} = 20cm$

$m\overline{FG} = 30cm$

What is the length of segment HD?





① SAS

$\Delta GHD \cong \Delta CDH$

② $\frac{18}{48} = \frac{x}{(x+20)}$

$48x = 18(x+20)$

$48x = 18x + 360$

$-18x \quad -18x$

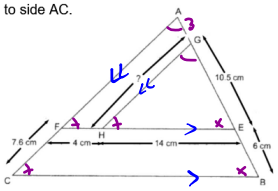
$\frac{30x}{30} = \frac{360}{30}$

$x = 12cm$

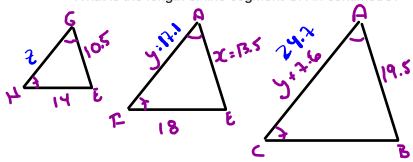
7. In triangle ABC below, line segment EF was drawn parallel to side BC, and line segment GH was drawn parallel to side AC.

In addition:

$m\overline{BE} = 6cm$
$m\overline{CF} = 7.6cm$
$m\overline{EG} = 10.5cm$
$m\overline{EH} = 14cm$
$m\overline{FH} = 4cm$



What is the length of line segment GH in centimetre?



① $\overline{AE}$: $\frac{14}{19} = \frac{10.5}{x}$ $x = 13.5$

② $\overline{AF}$: $\frac{y}{y+7.6} = \frac{13.5}{19.5}$

$19.5y = 13.5(y+7.6)$

$19.5y = 13.5y + 102.6$

$-13.5y$

$6y = 102.6$

$y = 17.1$

③ $\overline{GH} = 13.3\,cm$

$\frac{14}{18} = \frac{z}{17.1}$ or $\frac{z}{24.7} = \frac{10.5}{19.5}$