ANSWERS AND WORKING ARE TO BE WRITTEN IN THE SPACE PROVIDED.
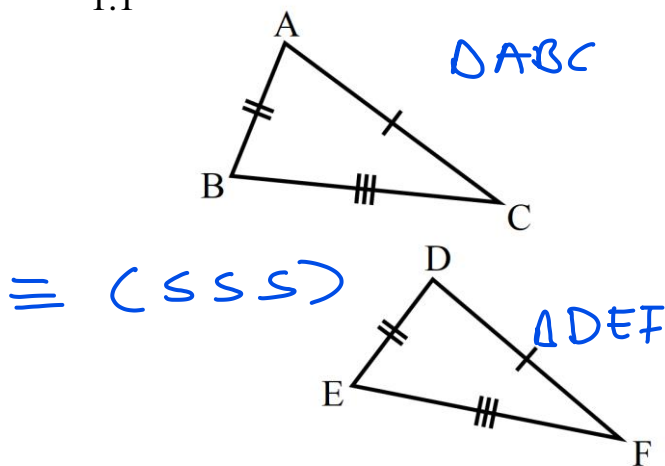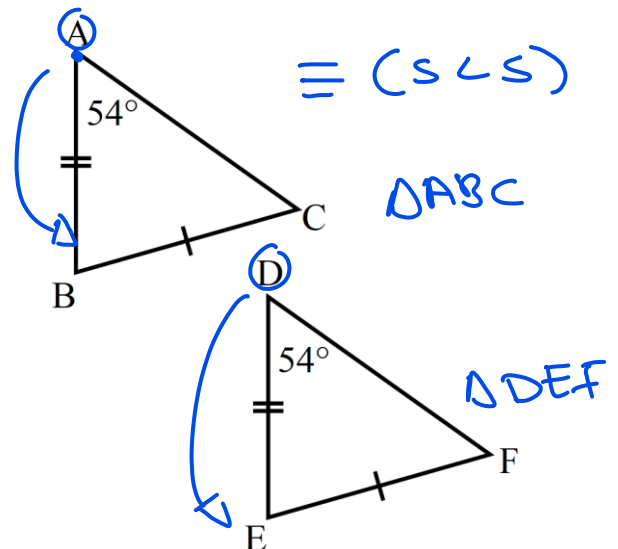**CALCULATORS ARE ALLOWED.**

QUESTION 1

In each of the following, state whether ΔABC is congruent, similar, or neither compared to ΔDEF or the 2nd triangle If the triangles are congruent or similar, state a reason why, labeling the triangles in the correct order.
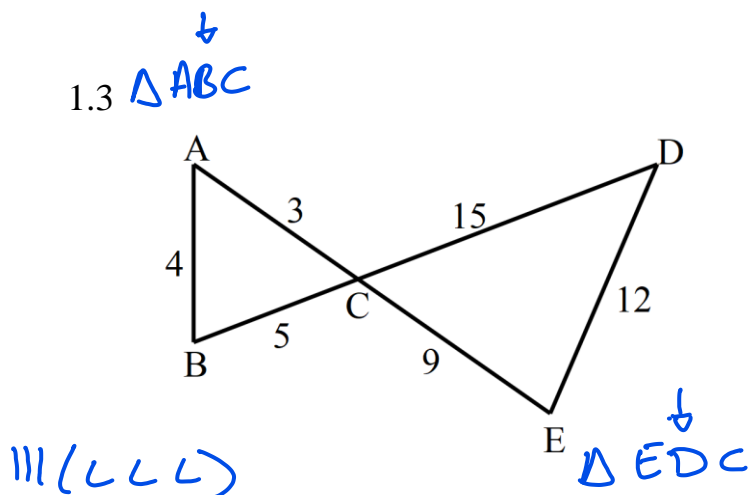
(7)

1.1

ΔABC
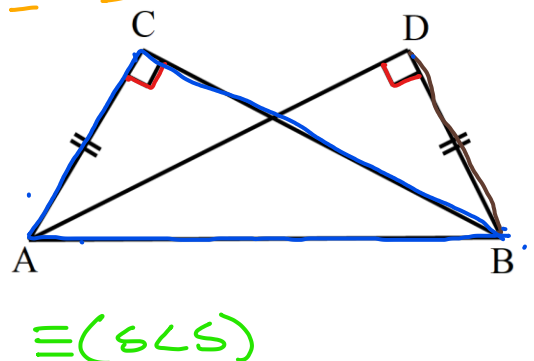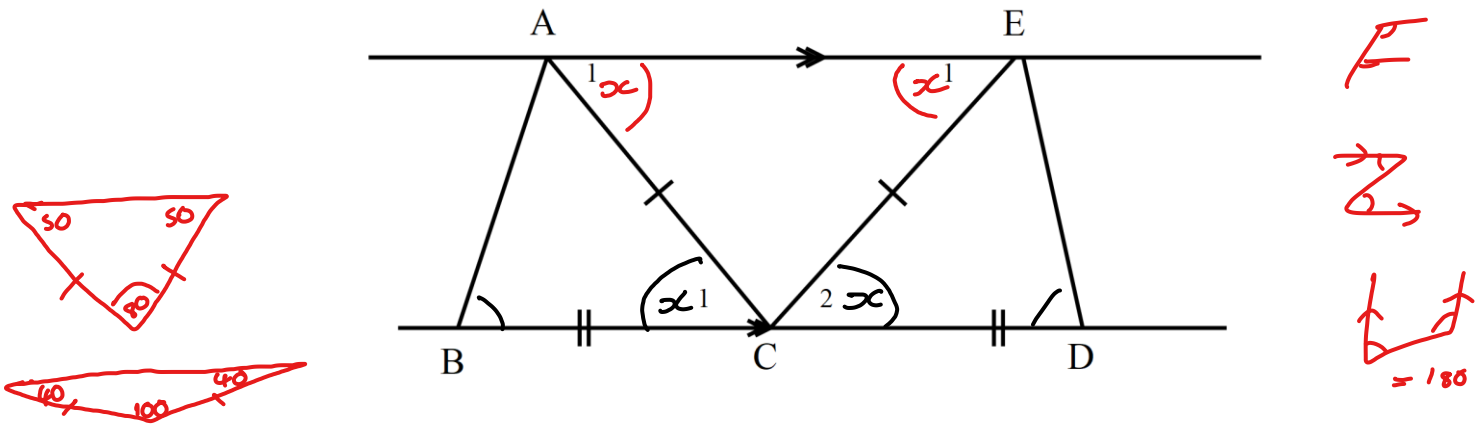
ΔDEF

≡ (SSS)

1.2

≡ (S∠S)

ΔABC

54°

54°

ΔDEF

1.3 ΔABC

3   15

4

C

5   9   12

E   ΔEDC

‖‖‖(LLL)

1.4 ΔACB   ΔBDA

C   D

A   B

≡(S∠S)

QUESTON 2

2.1 In the diagram below, AE∥BD, BC = CD and AC = CE.

Prove that $\triangle A\overset{\smile}{B}\overset{\bullet}{C} \equiv \triangle E\overset{\smile}{D}\overset{\bullet}{C}$. (5)

STATEMENT	REASON
$BC = CD$	} given
$AC = CE$	
$A_1 = E_1 = x$	{ prop of iso △ }
$C_1 = x$	{ alt ∠'s AE∥BD }
$C_2 = x$	
$C_1 = C_2$	{ proved }
$\therefore \triangle ABC \equiv \triangle EDC \ (SCS)$	

2.2 In the diagram below, O is the centre of both circles.
AC and BD are straight lines.
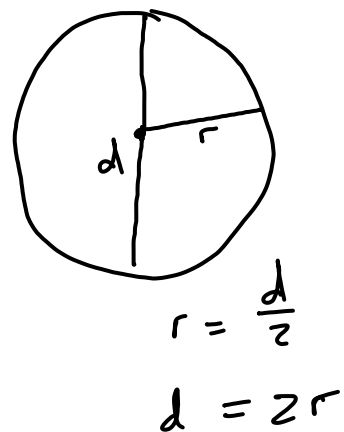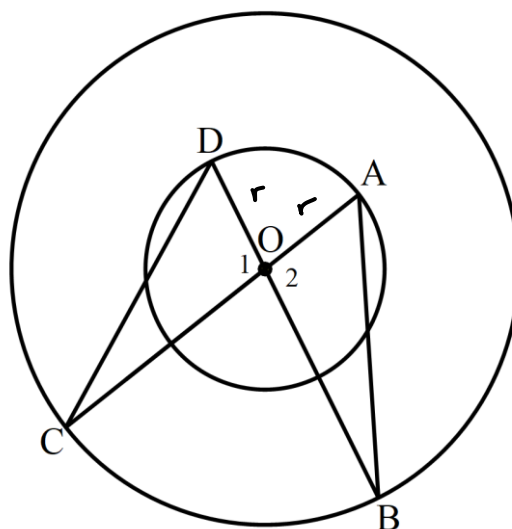
2.2.1 Prove that $\Delta OAB \equiv \Delta ODC$. (4)

STATEMENT	REASON
$DO = OA$	{ radii
$OC = OB$	"
$O_1 = O_2$	{ vert opp ∠·s}
$\Delta OAB \equiv \Delta ODC$	{ SAS}

2.2.2 Hence, prove that DC = AB. (1)

$$DC = AB \quad (\equiv)$$

2.3   In the diagram below, CD||AB and AC||BD and AC = BD.
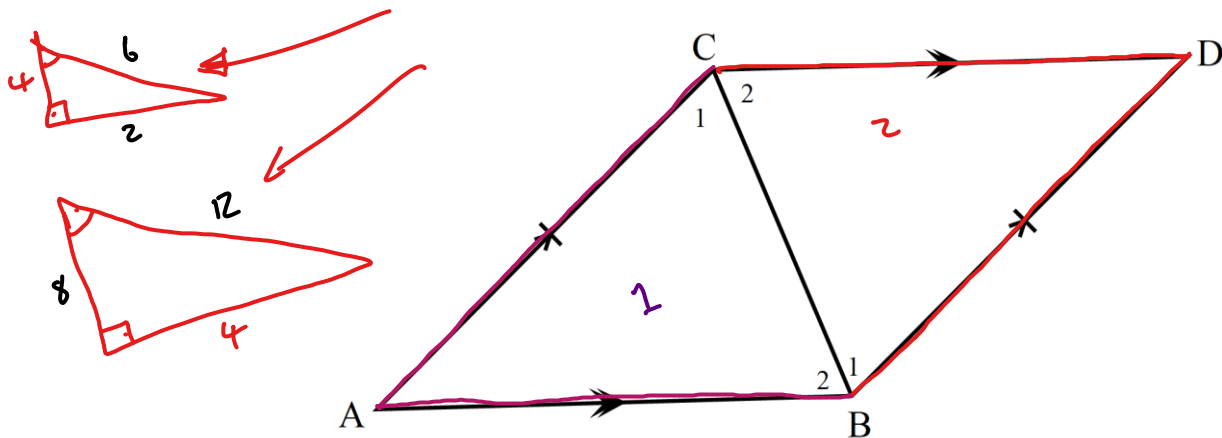

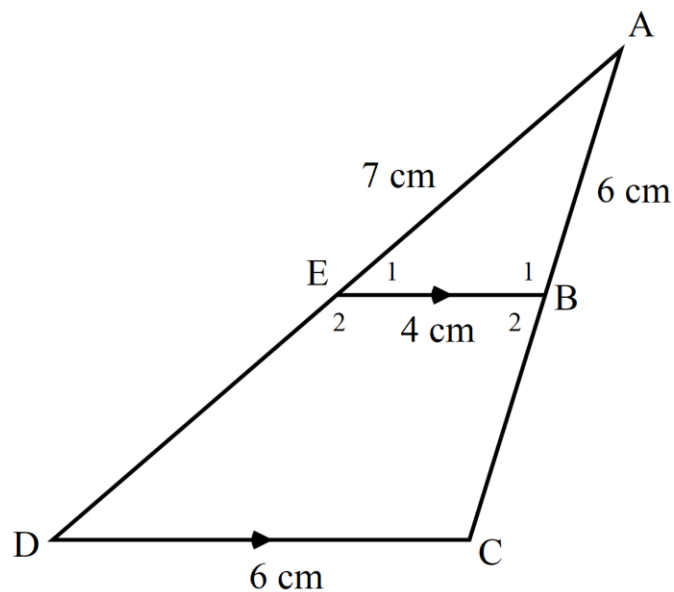Prove that $\triangle ABC \equiv \triangle DCB$.   (5)

STATEMENT	REASON
$C_2 = B_2$	(alt ∠'s CD||AB)
$C_1 = B_1$	(alt ∠'s AC||BD)
$AC = BD$	(given)
$CB = CB$	(common side)
$\therefore \triangle ABC \equiv \triangle DCB$	(S∠S)

QUESTION 3

In the diagram below, EB‖DC.
AE = 7 cm, AB = DC = 6 cm and EB = 4 cm.

3.1   Prove that $\triangle AEB\,|||\,\triangle ADC$.   (4)

STATEMENT	REASON

3.2   Find the lengths, **in cm,** of:

   3.2.1 AD   (2)

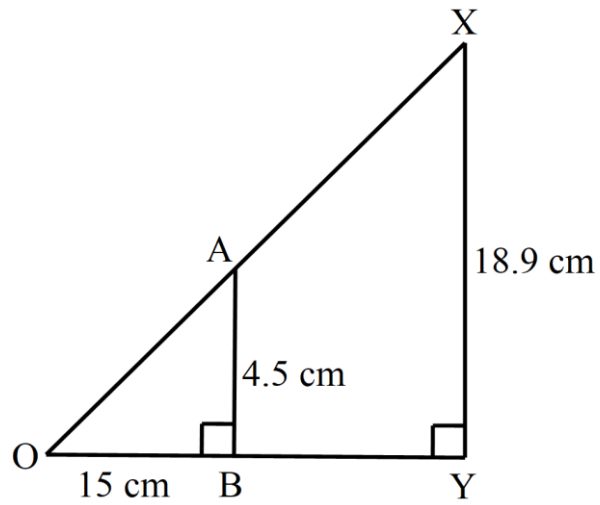   3.2.2 DE   (2)

QUESTION 4

In the diagram below, AB and XY are both perpendicular to OY.
OB = 15 cm, AB = 4,5 cm and XY = 18,9 cm. The diagram is not drawn to scale.

Calculate the length of BY. (5)