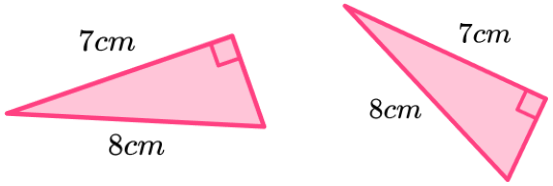
Congruent Triangles - Worksheet

Skill

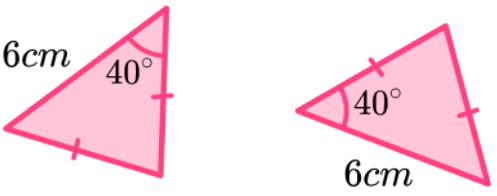
Group A - Two triangles that are congruent

Decide whether the pairs of triangles are congruent. If they are congruent, state why:

1)

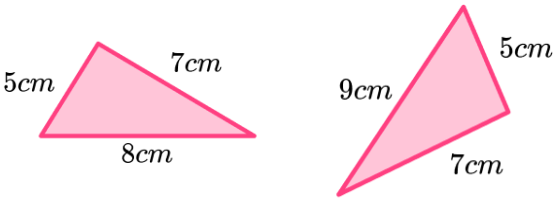


2)



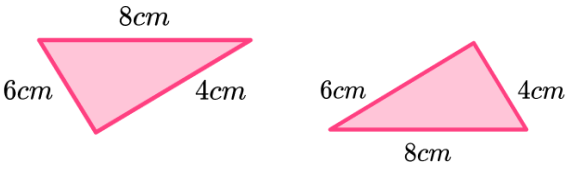
3)

4)

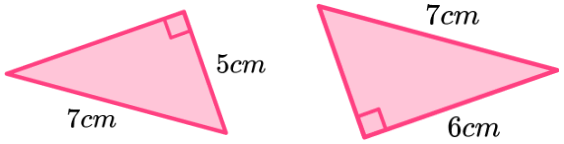


5)

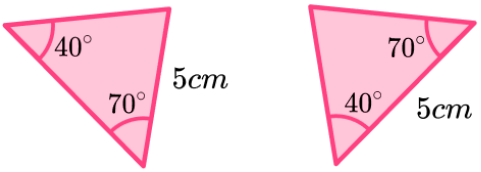
6)



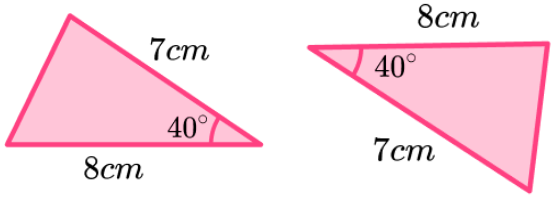
7)



8)



9)



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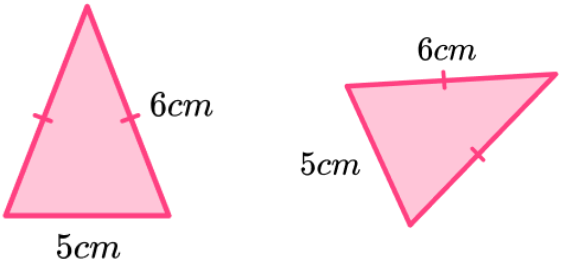
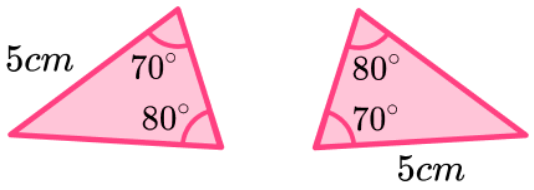


11)



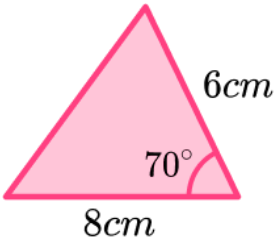
12)

Congruent Triangles - Worksheet

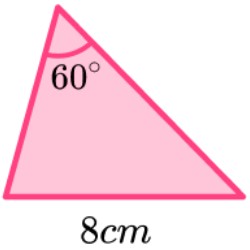
Group B - Whether constructing a congruent triangle is possible

Decide if you can construct a congruent copy of these triangles. If you can, explain why:

1)



2)



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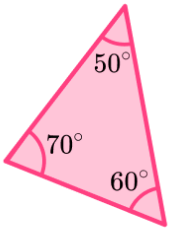
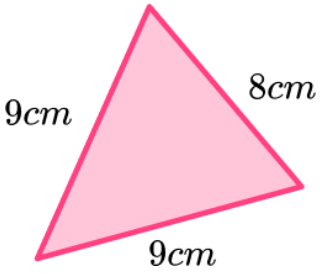


4)



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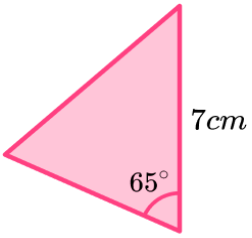

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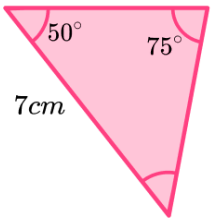

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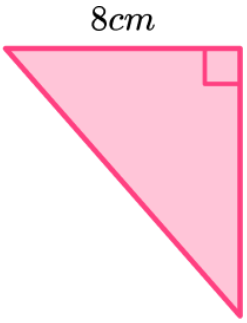

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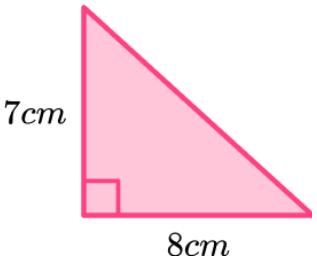

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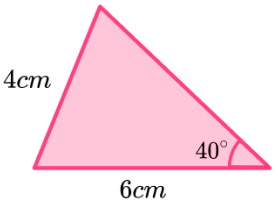

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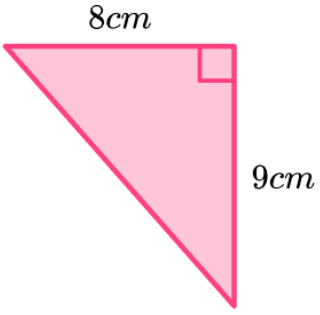

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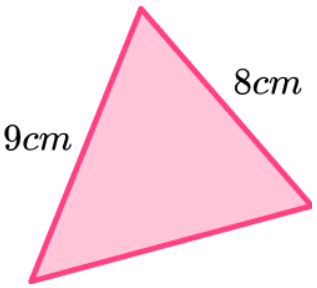

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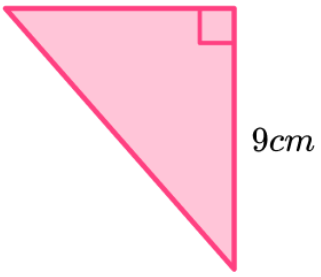
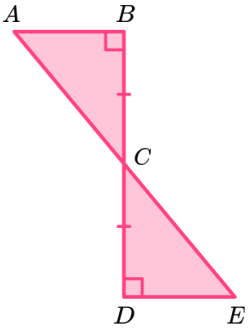


Congruent Triangles - Worksheet

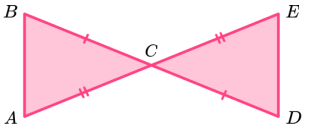
Group C - Proving congruence in triangles

Prove whether or not the following pairs of triangles are congruent:

1)



2)



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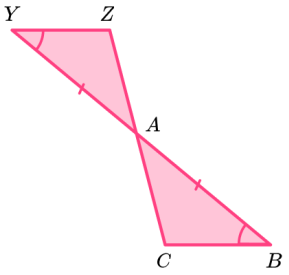
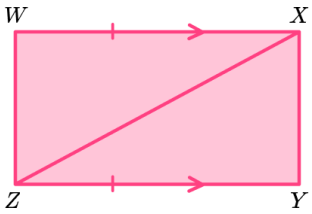
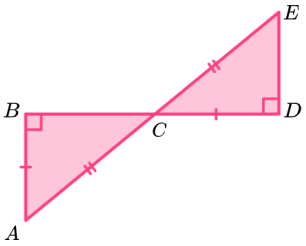


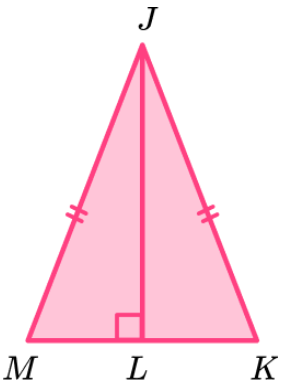
4)



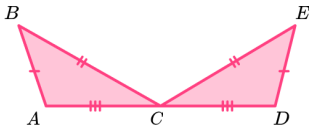
5)



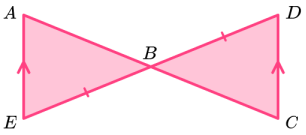
6)



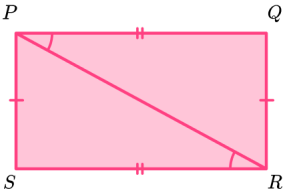
7)



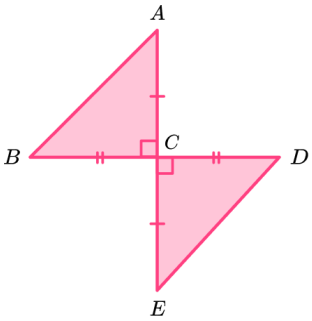
8)



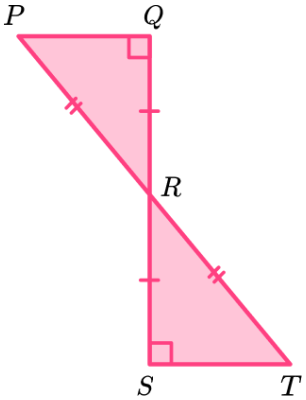
9)



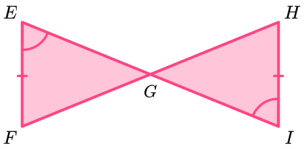
10)



11)



12)



Congruent Triangles - Worksheet

Applied

1) In triangle ABC, $AB = 7cm$, angle $BAC = 60°$ and angle $ABC = 45°$
In triangle DEF, $EF = 7cm$, angle $DEF = 45°$ and angle $DFE = 60°$

Are triangles ABC and DEF congruent?

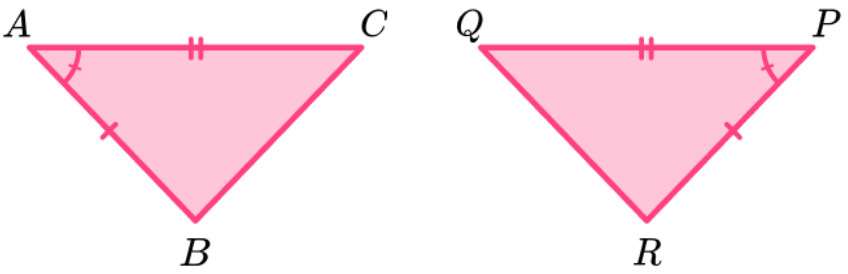
If they are, state the condition.

2) Laura and Jake each draw a triangle with one side $4cm$, one angle of $45°$ and one angle of $60°$.

Laura says their triangles **must** be congruent. Is Laura correct?

3) If two triangles are congruent then their corresponding sides and their corresponding angles are equal. True or false?

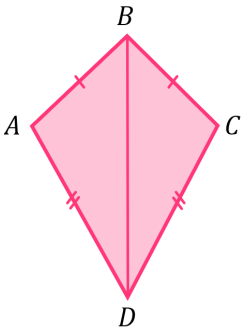
4) The two triangles below are congruent. State the condition of congruency.



5) Two right angled triangles are congruent if the hypotenuse and a side of one of the triangles are equal to the hypotenuse and the corresponding side of the other triangle. True or false?

Congruent Triangles - Exam Questions

1) In the diagram, $AB = BC$ and $CD = AD$.



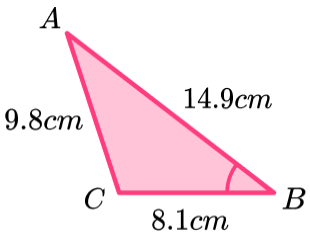
Prove that triangle ADB is congruent to triangle CDB.

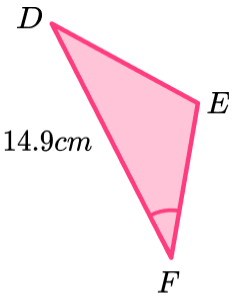
.....

(3 marks)

---

2) ABC and DEF are congruent triangles. Angle ABC = Angle DFE.





(a) Write down the length of EF.

.....cm

(1)

(b) Explain why angle A = angle D

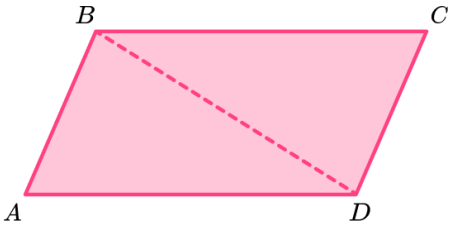
.....

(3)

(4 marks)

Congruent Triangles - Exam Questions

3) ABCD is a parallelogram.

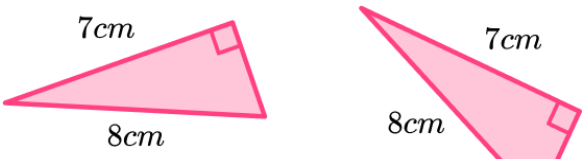
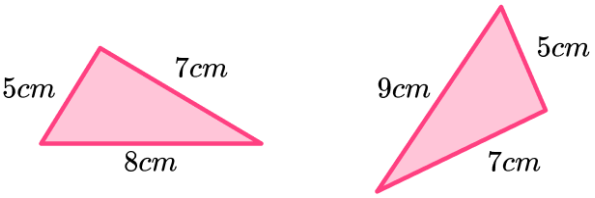
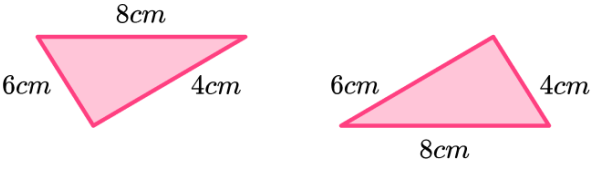


Prove that triangles ABD and BCD are congruent.

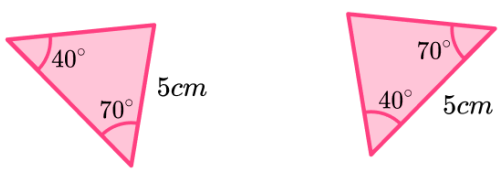
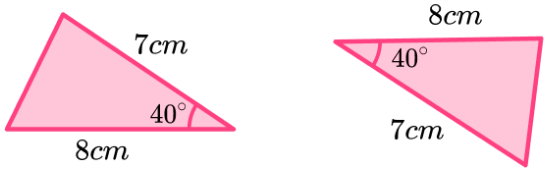
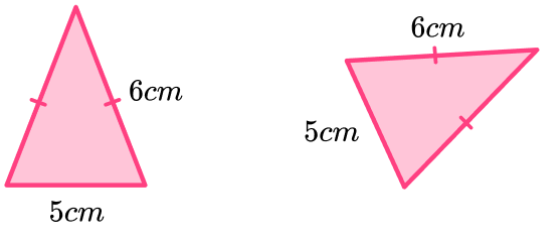
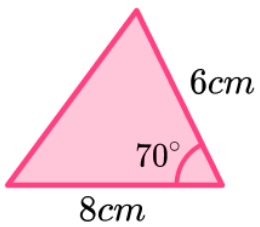
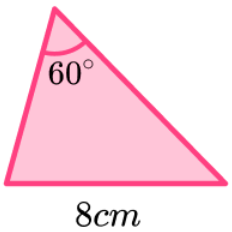
.....

(4 marks)

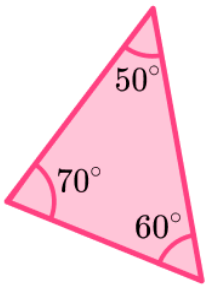
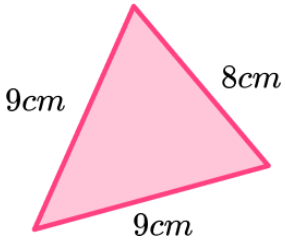
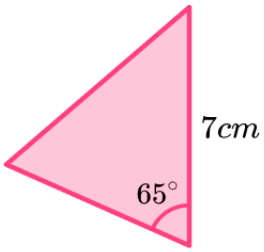
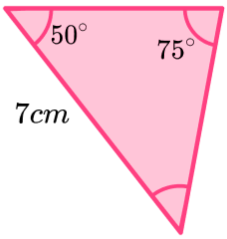
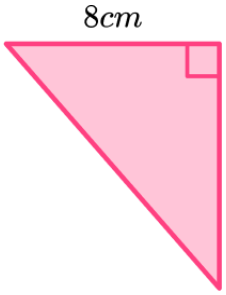
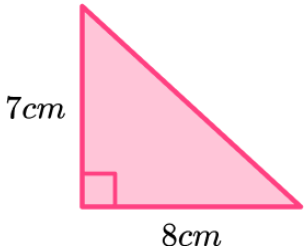
Congruent Triangles - Answers

	Question	Answer
	Skill Questions	
Group A	Decide whether the pairs of triangles are congruent. If they are congruent, state why:	
	1) 	**1)** Yes, RHS
	2) 	**2)** Yes, ASA
	3) 	**3)** Yes, SAS
	4) 	**4)** No
	5) 	**5)** Yes, ASA
	6) 	**6)** Yes, SSS
	7) 	**7)** No

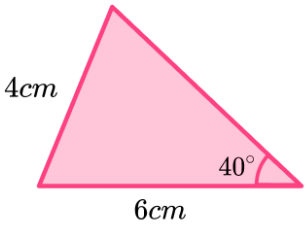
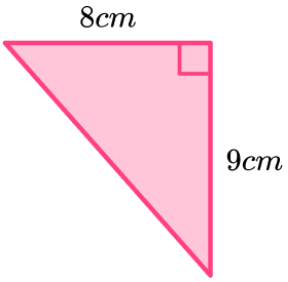
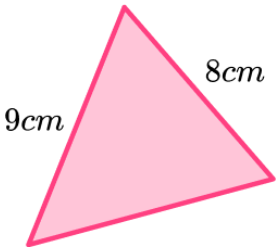
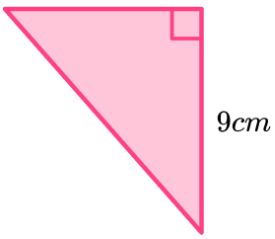
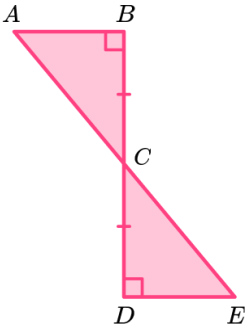
Congruent Triangles - Answers

Group A contd	**8)** 	**8)** No
	9) 	**9)** Yes, SAS
	10) 	**10)** Yes, SSS
	11) 	**11)** Yes, ASA
	12) 	**12)** Unknown (Ambiguous)
Group B	Decide if you can construct a congruent copy of these triangles. If you can, explain why:	
	1) 	**1)** Yes, SAS
	2) 	**2)** No, need more info

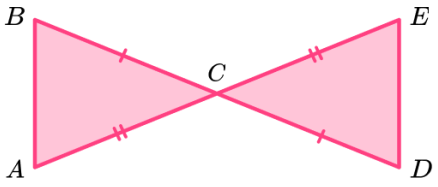
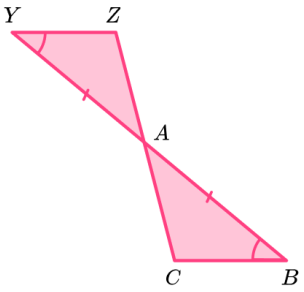
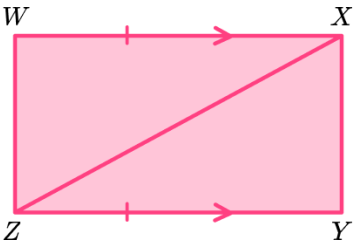
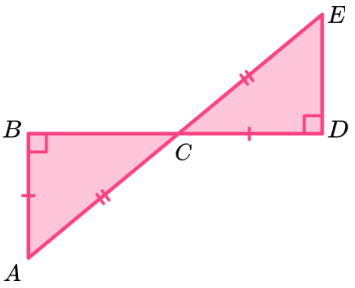
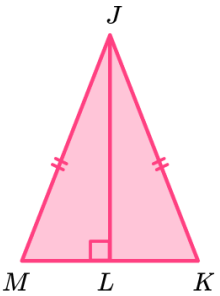
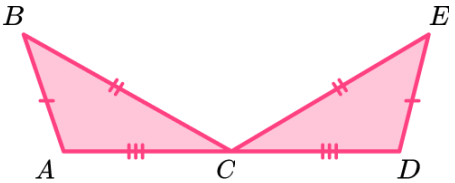
Congruent Triangles - Answers

Group B contd	**3)** 	**3)** No, need more info
	4) 	**4)** Yes, SSS
	5) 	**5)** No, need more info
	6) 	**6)** Yes, ASA
	7) 	**7)** No, need more info
	8) 	**8)** Yes, RHS

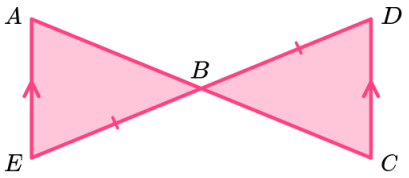
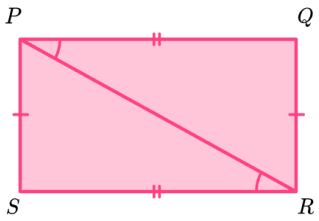
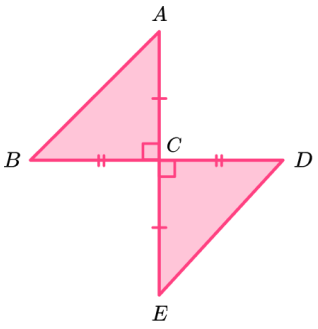
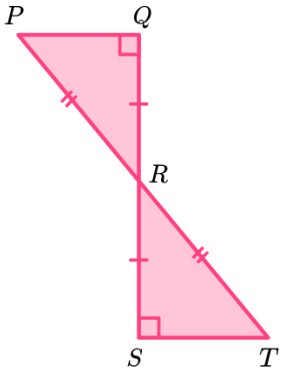
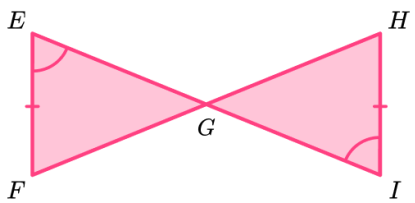
Congruent Triangles - Answers

Group B contd	**9)** 	**9)** No, need more info
	10) 	**10)** Yes, SAS
	11) 	**11)** No, need more info
	12) 	**12)** No, need more info
Group C	Prove whether the following pairs of triangles are congruent: **1)** 	**1)** $BC = CD$ angle ABC = angle CDE angle BCA = angle DCE Vertically opposite angles are equal Congruent, ASA

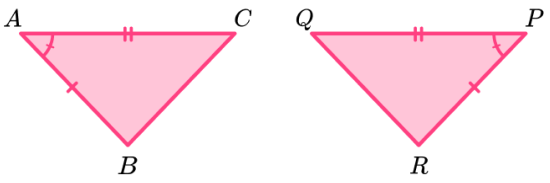
Congruent Triangles - Answers

Group C contd	**2)** 	**2)** $BC = CD$ $AC = CE$ angle BCA = angle DCE Vertically opposite angles are equal Congruent, SAS
	3) 	**3)** $YA = AB$ angle AYZ = angle ABC angle YAZ = angle BAC Vertically opposite angles are equal Congruent, ASA
	4) 	**4)** $WX = ZY$ angle WXZ = angle XZY Alternate angles are equal XZ is common to both Congruent, SSS
	5) 	**5)** $AB = ED$ $BA = CD$ angle ABC = angle EDC Congruent, RHS
	6) 	**6)** $JM = JK$ JL is common to both angle MLJ = angle JLK = 90°, angles on a straight line add up to 180° Congruent, RHS
	7) 	**7)** $AB = DE$ $AC = CD$ $BC = CE$ Congruent, SSS

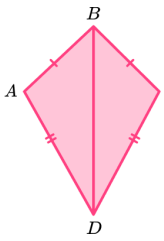
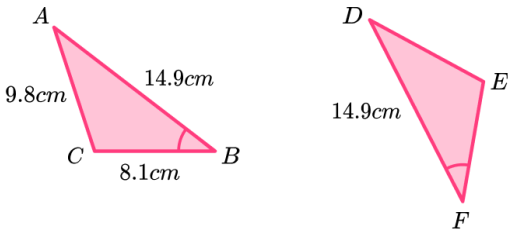
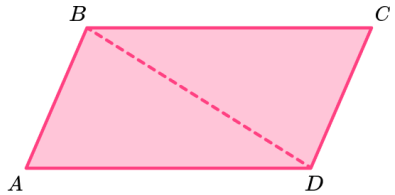
Congruent Triangles - Answers

Group C contd	**8)** 	**8)** $EB = BD$ angle EAB = angle DCB alternate angles are equal angle ABE = angle CBD Vertically opposite angles are equal Congruent, ASA
	9) 	**9)** $PS = QR$ $PQ = SR$ PR is common to both Congruent, SSS
	10) 	**10)** $AC = CE$ $BC = CD$ angle ACB = angle ECD Congruent, SAS
	11) 	**11)** $PR = RT$ $QR = RS$ angle PQR = angle RST Congruent, RHS
	12) 	**12)** $EF = HI$ angle FEG = angle HIG Alternate angles are equal angle EGF = angle TGH Vertically opposite angles are equal Congruent, AAS

Congruent Triangles - Answers

	Question	Answer
	Applied Questions	
1)	In triangle ABC, $AB = 7cm$, angle $BAC = 60°$ and angle $ABC = 45°$ In triangle DEF, $EF = 7cm$, angle $DEF = 45°$ and angle $DFE = 60°$ Are triangles ABC and DEF congruent? If they are, state the condition.	Yes, ASA
2)	Laura and Jake each draw a triangle with one side $4cm$, one angle of $45°$ and one angle of $60°$. Laura says their triangles **must** be congruent. Is Laura correct?	No, the position of the side in relation to the angles could be different.
3)	If two triangles are congruent then their corresponding sides and their corresponding angles are equal. True or false?	True
4)	The two triangles below are congruent. State the condition of congruency.  	SAS
5)	Two right angled triangles are congruent if the hypotenuse and a side of one of the triangles are equal to the hypotenuse and the corresponding side of the other triangle. True or false?	True

Congruent Triangles - Mark Scheme

	Question	Answer	
	Exam Questions		
1)	In the diagram, $AB = BC = CD = DA$  Prove that triangle ADB is congruent to triangle CDB.	$AB = BC$ **and** $CD = DA$ BD is common to both Congruent, SSS	**(1)** **(1)** **(1)**
2)	ABC and DEF are congruent triangles.  Angle ABC = Angle DFE		
(a)	Write down the length of EF.	**(a)** $8.1cm$	**(1)**
(b)	Explain why angle CAB = angle EDF	**(b)** angle ABC = angle DFE $AB = DF, BC = EF$ **and** $AC = DE$ So angle CAB = angle EDF	**(1)** **(1)** **(1)**
3)	$ABCD$ is a parallelogram.  Prove that triangles ABD and BCD are congruent.	BD is common to both $BA = CD$ opposite sides of a parallelogram are equal $BC = AD$ opposite sides of a parallelogram are equal Therefore, congruent, SSS Alternatively - could use "alternate angles are equal" and pair up angles.	**(1)** **(1)** **(1)** **(1)**