

Name: _____

Exam Style Questions



Congruent Triangles

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

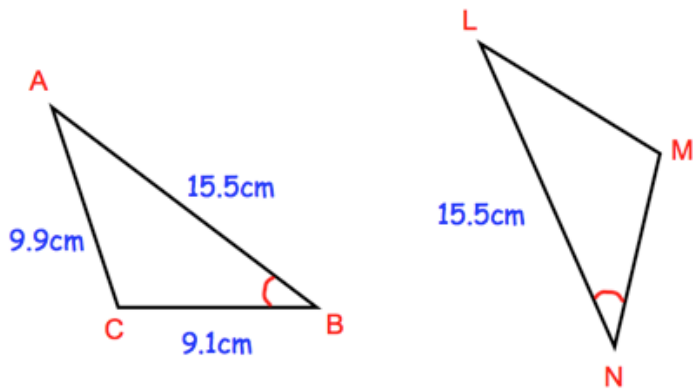
Revision for this topic

www.corbettmaths.com/contents

Video 67



1. ABC and LMN are congruent triangles.
Angle B = Angle N



- (a) Write down the length of MN.

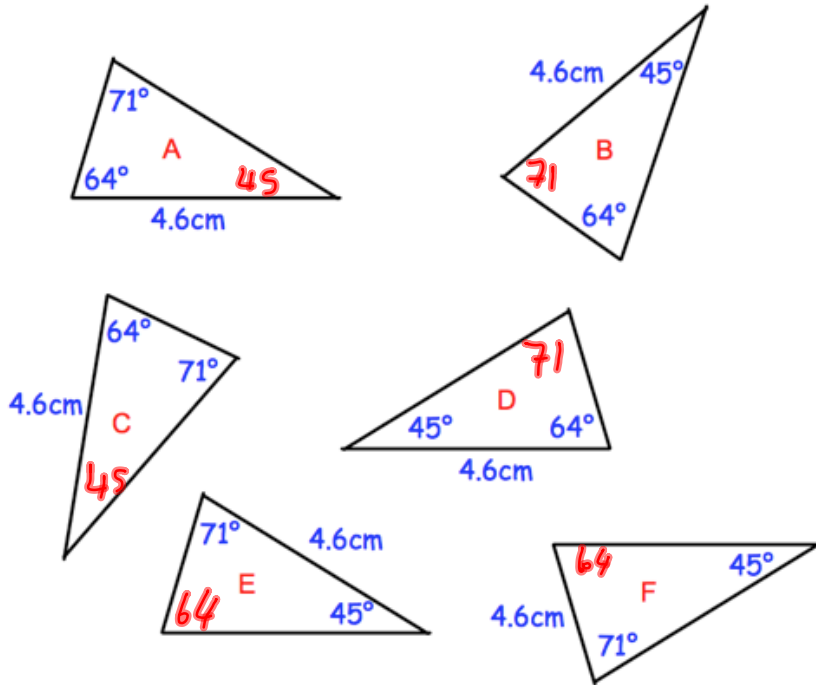
9.1cm
(1)

- (b) Explain why angle A = angle L

As AB=LN and Angle B = Angle N
Then Angle A = Angle L

(2)

2. Shown below are six triangles that are not drawn accurately.

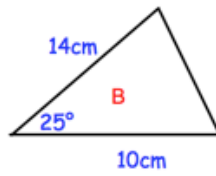
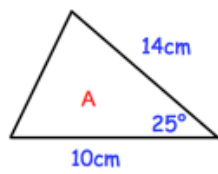


Which two triangles are congruent to triangle A?

D and C
..... and
(2)

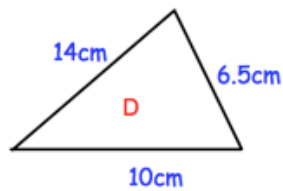
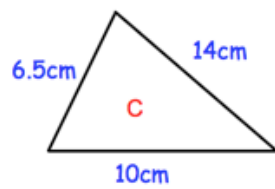
3. For each pair below, state the condition why they are congruent.

(a)



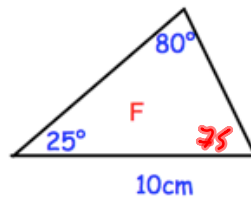
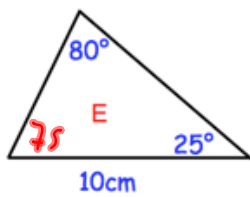
Condition: *SAS*.....
(1)

(b)



Condition: *SSS*.....
(1)

(c)

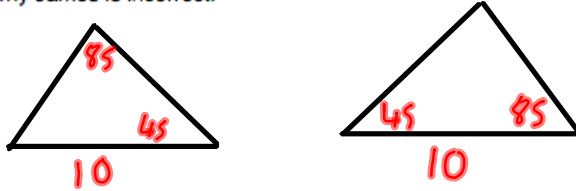


Condition: *AAS*.....
or
ASA.....
(1)

4. James and Chris each draw a triangle with one side of 10cm, one angle of 45° and one angle of 85° .

James says their triangles are congruent.

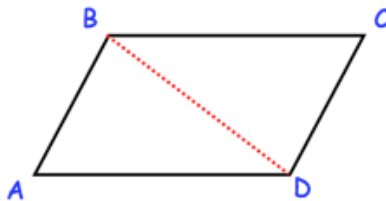
Explain why James is incorrect.



We do not know exact location of each angle. The two triangles above are not congruent

(2)

5. ABCD is a parallelogram.



Prove that triangles ABD and BCD are congruent.

BD is shared

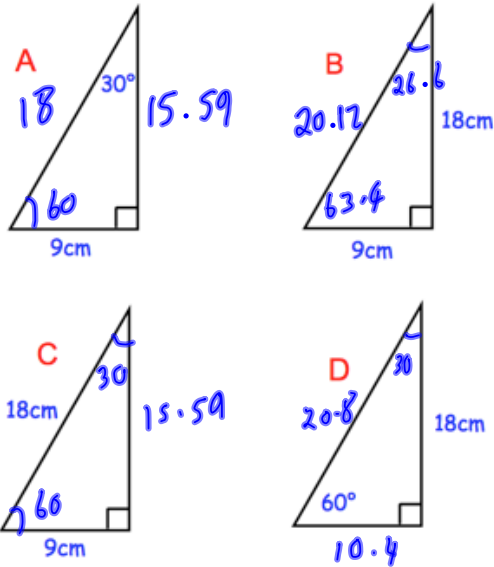
BA = CD (opposite sides of a parallelogram)

BC = AD (opposite sides of a parallelogram)

Therefore ABD and BCD are congruent due to Side, Side, Side.

(4)

6. Two of the triangles below are congruent.



Identify the two congruent triangles and explain your answer.

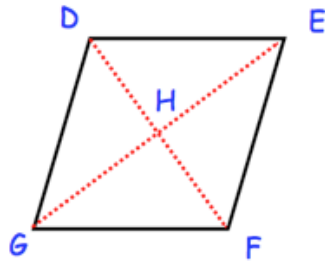
A and *C*

Reason: *Depends on values found.*

Could be SSS/SAS/RHS/ASA etc

.....

7. The diagram shows a rhombus DEFG.
The diagonals intersect at H.



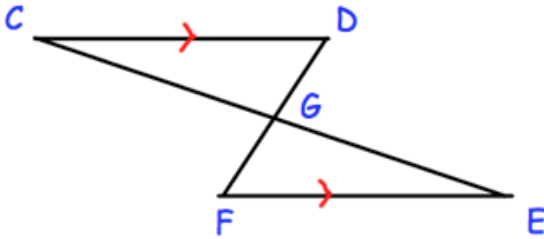
Prove triangles DGH and EFH are congruent.

$DG = EF$ as rhombus (opposite sides)
 $DH = HF$ diagonals bisect each other
 $GH = EH$ diagonals bisect each other
DGH and EFH are congruent as SSS

(4)

8. In the diagram, the lines CE and DF intersect at G.

CD and FE are parallel and $CD = FE$.



Prove that triangles CDG and EFG are congruent.

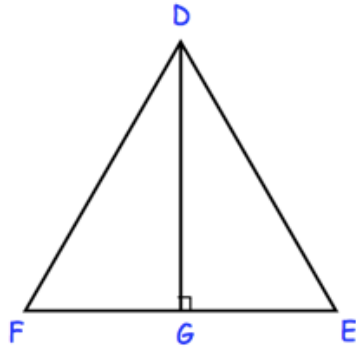
$CD = FE$ (given)

Angle DCE = FEC (alternate angles)

Angle CDF = EFD (alternate angles)

CDG and EFG are congruent as ASA

9. DEF is an equilateral triangle.



G lies on EF.

DG is perpendicular to FE.

Prove DFG is congruent to DEG.

DG is shared

DF = DE as equilateral triangle

Angle DGE = DGF = 90 degrees

Therefore congruent as RHS.

Or Angle EFD = FED = 60 degrees as equilateral triangle.

Therefore both EDG = FDG = 30 degrees

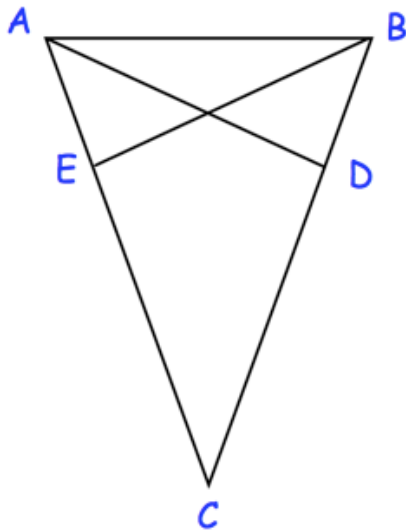
So could say SAS.

(3)

Or even AAS or ASA

Clear explanation needed

10. ABC is an isosceles triangle in which $AC = BC$.
D and E are points on BC and AC such that $CE = CD$.



Prove triangles ACD and BCE are congruent.

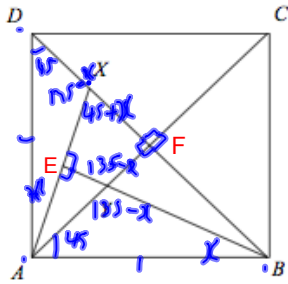
$AC = BC$ (sides of an isosceles triangle)

Angle $ACD = BCE$ (shared)

$CE = CD$ (given)

Therefore SAS.

12. ABCD is a square, X is a point in the diagonal BD and the perpendicular from B to AX meets AC in Y.



Prove that triangles AXD and AYB are congruent.

$AB = AD$ as a square

$BAC = ADB = 45$ degrees (diagonals bisect right angle)

Let $ABY = x$

Therefore $AYB = 180 - 45 - x = 135 - x$

$EYF = AYB$ (vertically opposite)

$AEB = XEB = 90$ degrees (perpendicular as in Question)

Four right angles at F (diagonals of a square)

$XEYF$ is a kite and since $XEY = XFY = 90$, then EYF and EXF add to 180. So $EXF = 45 + x$

Therefore $DXA = 135 - x$ (angles on straight line add to 180)

As angles in AXD add to 180, $DAX = x$ (4)

Therefore!! AYB is congruent to AXD due to Angle/Side/Angle