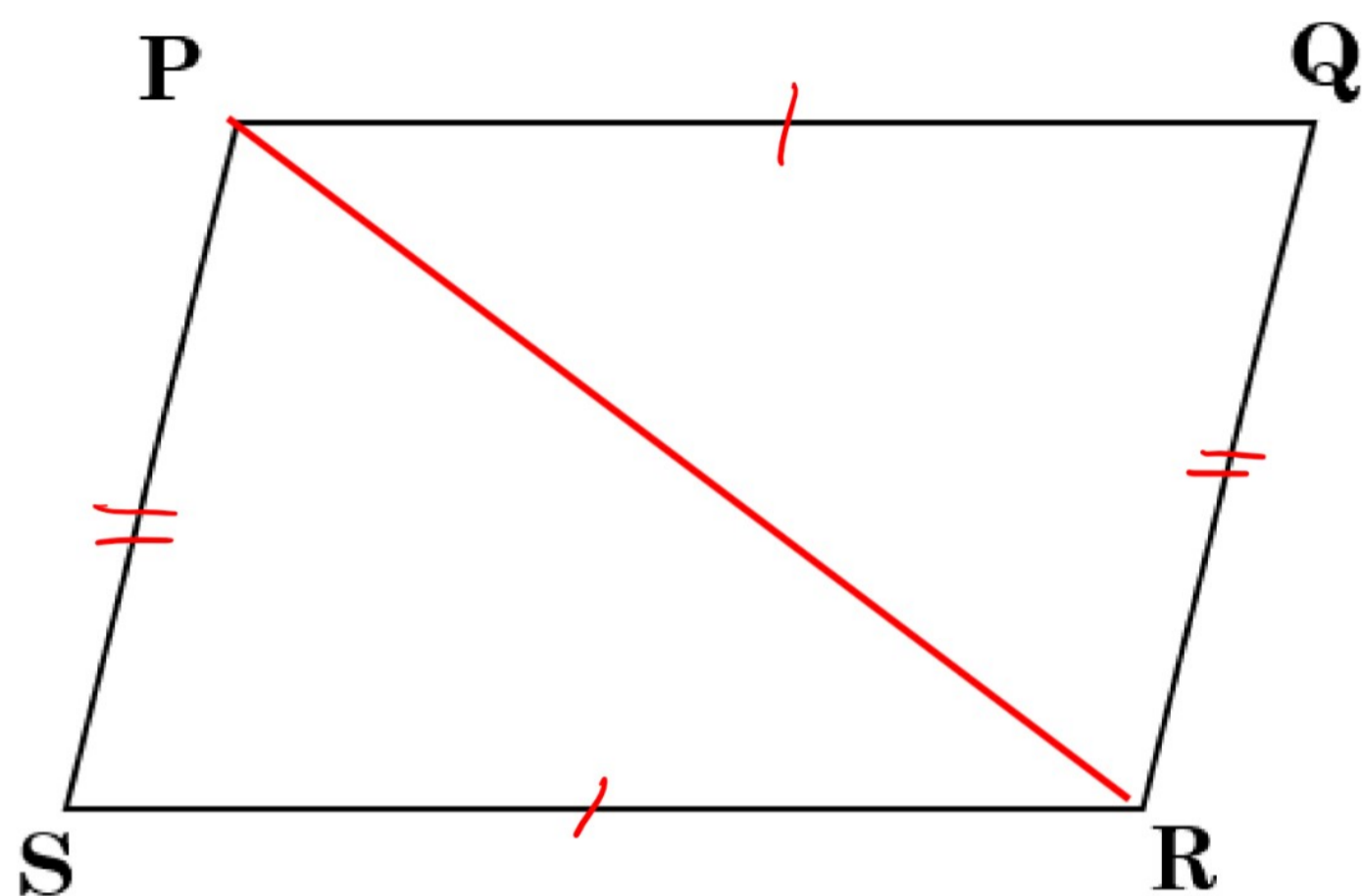




Congruent Triangles Exam Practice

Q1. PQRS is a parallelogram.



Prove that triangle PQR is congruent to triangle PSR.

Eg.

- PR is common to both PQR, PSR
- PS = QR
- SR = PQ

\therefore by SSS PQR, PSR are congruent

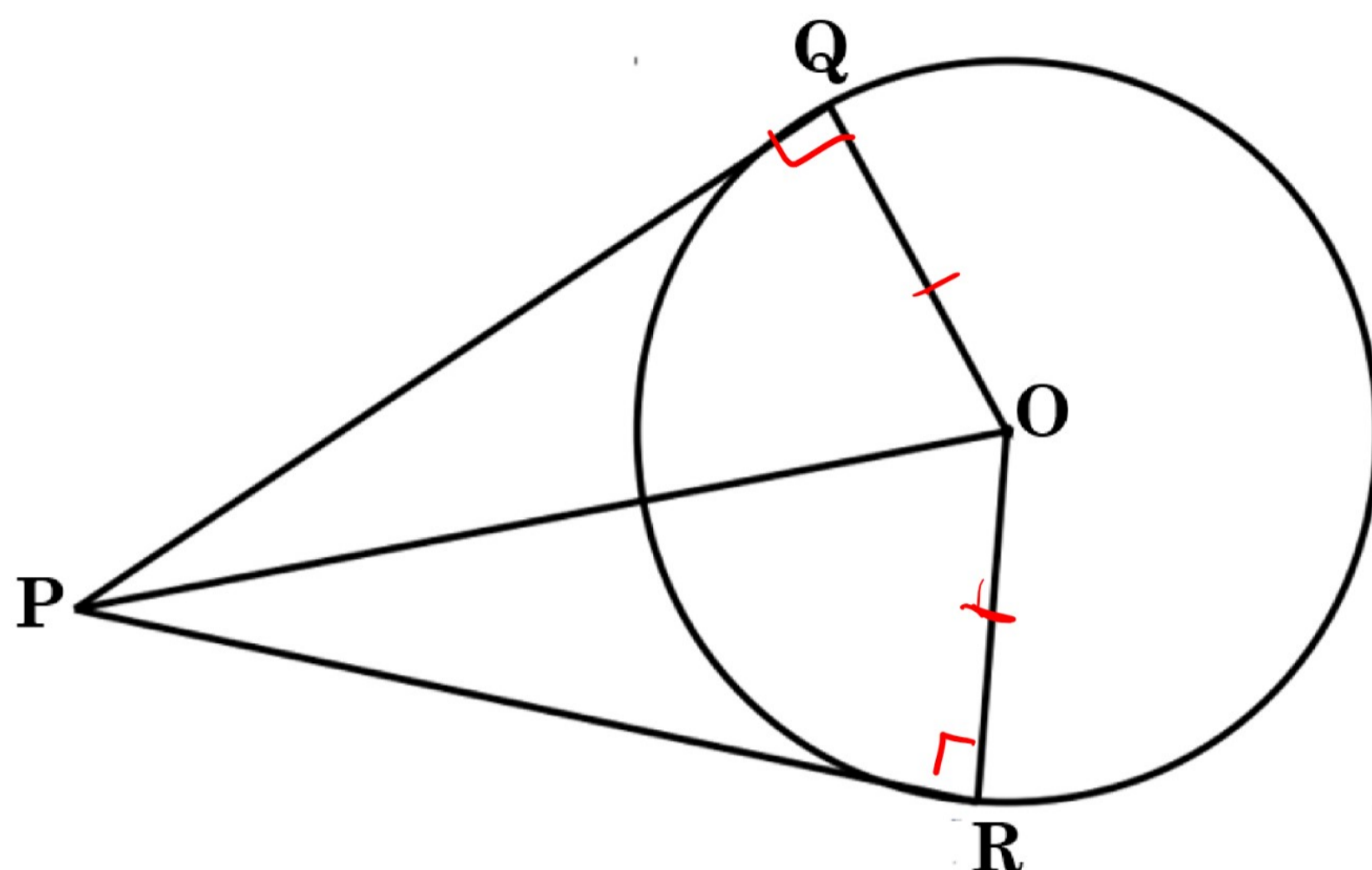
OR SAS

Answer: _____

(3 marks)



Q2. PQ and PR are tangents to the circle having centre O shown.
Prove that triangle POR is congruent to triangle POQ.



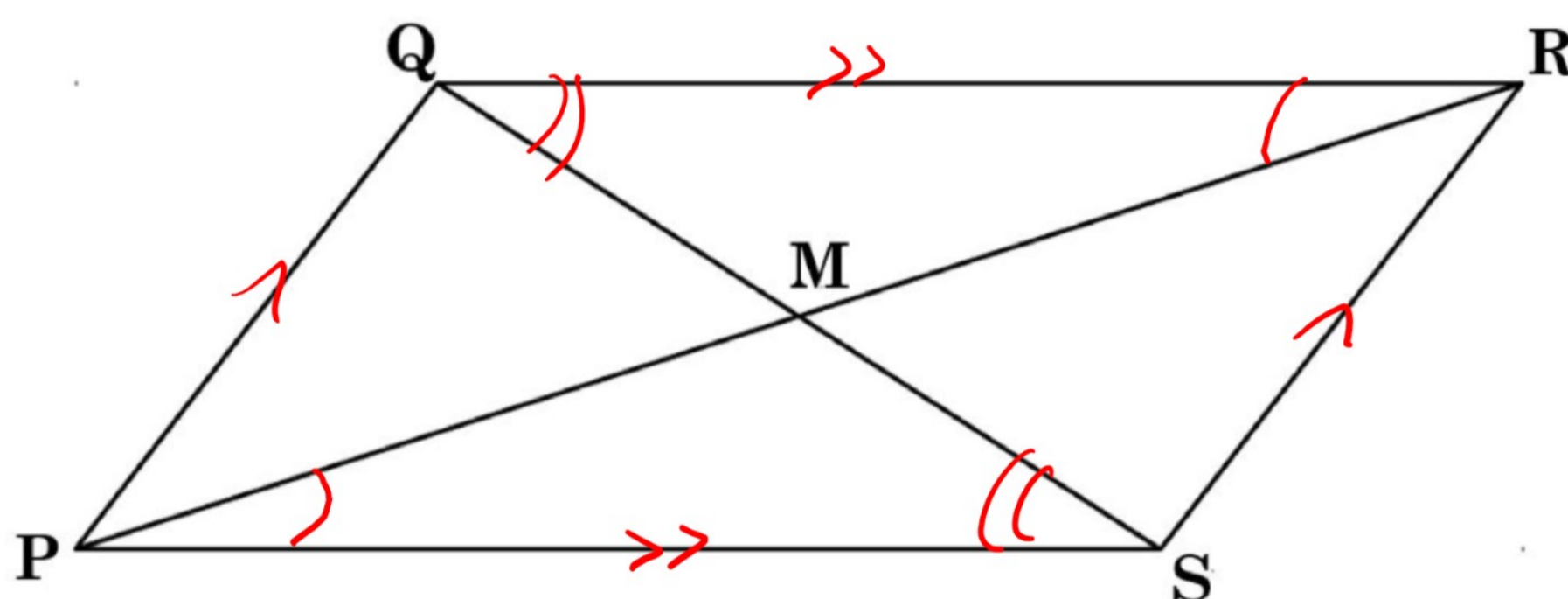
- $\hat{P}OQ = \hat{P}OR = 90^\circ$ by "tangent to a circle meets radius at 90° "
Circle Theorem
 - PO is common to both $\triangle POQ$, $\triangle POR$, and is the hypotenuse to both triangles
 - $OQ = OR$ (both radii)
- $\therefore \triangle POQ, \triangle POR$ are congruent by RHS

Answer: _____

(4 marks)



Q3. PQRS is a parallelogram, where M is the point where the diagonals intersect.



Prove that triangle QMR is congruent to triangle PMS.

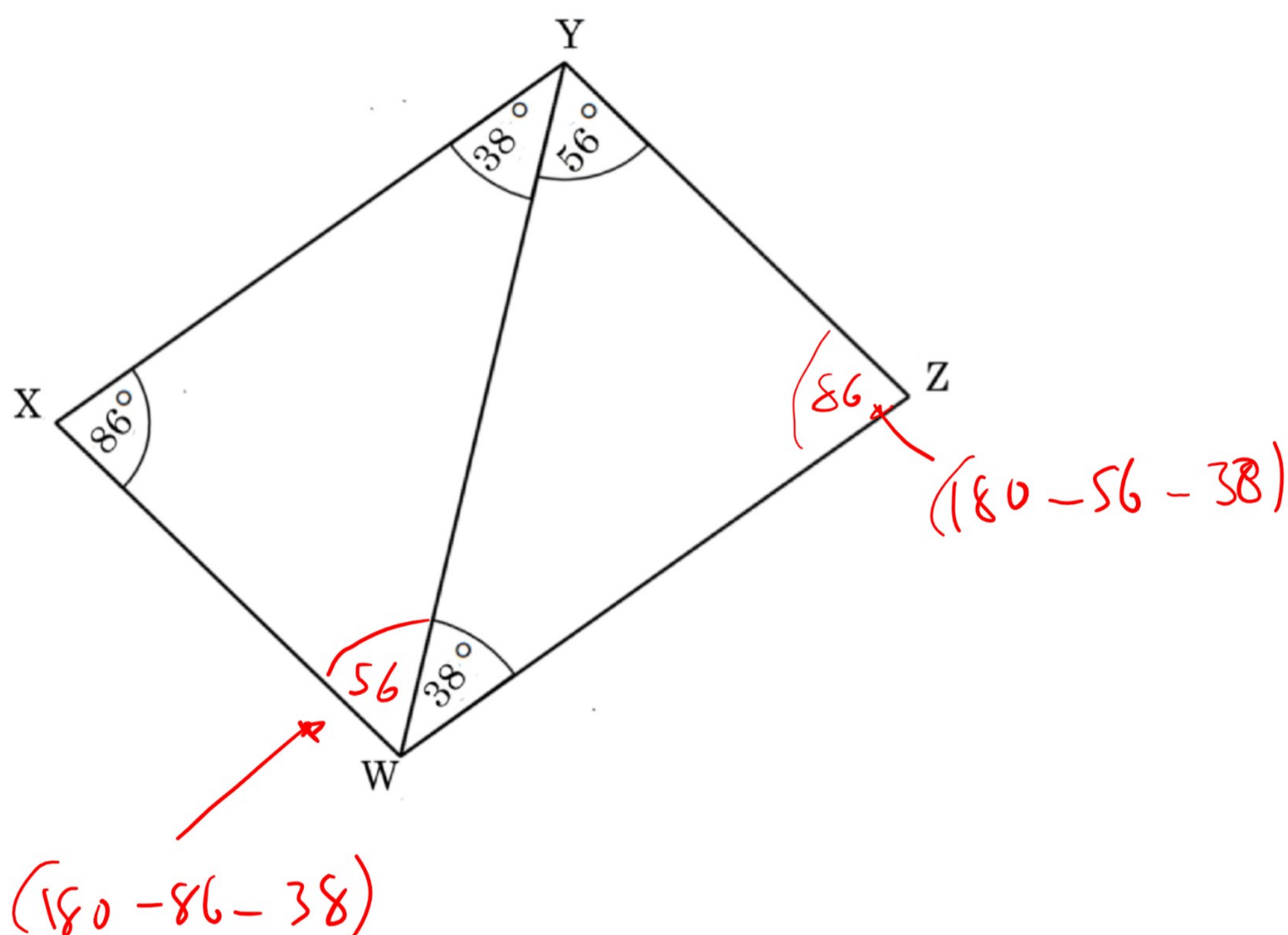
- $\hat{RPS} = \hat{QRM}$ by "alternate angles" in parallel lines.
- $\hat{MRQ} = \hat{MSM}$ similarly.
- $PS = QR$ (parallelogram)
- ∴ by ASA, the two triangles are congruent.

Answer: _____

(3 marks)



Q4. Prove that triangle WXY is congruent to triangle WYZ.



- WY is common to both triangles
- $\hat{X}WY = \hat{Y}WZ$ and $\hat{Y}WZ = \hat{W}YX$
- By ASA, the two triangles are congruent.

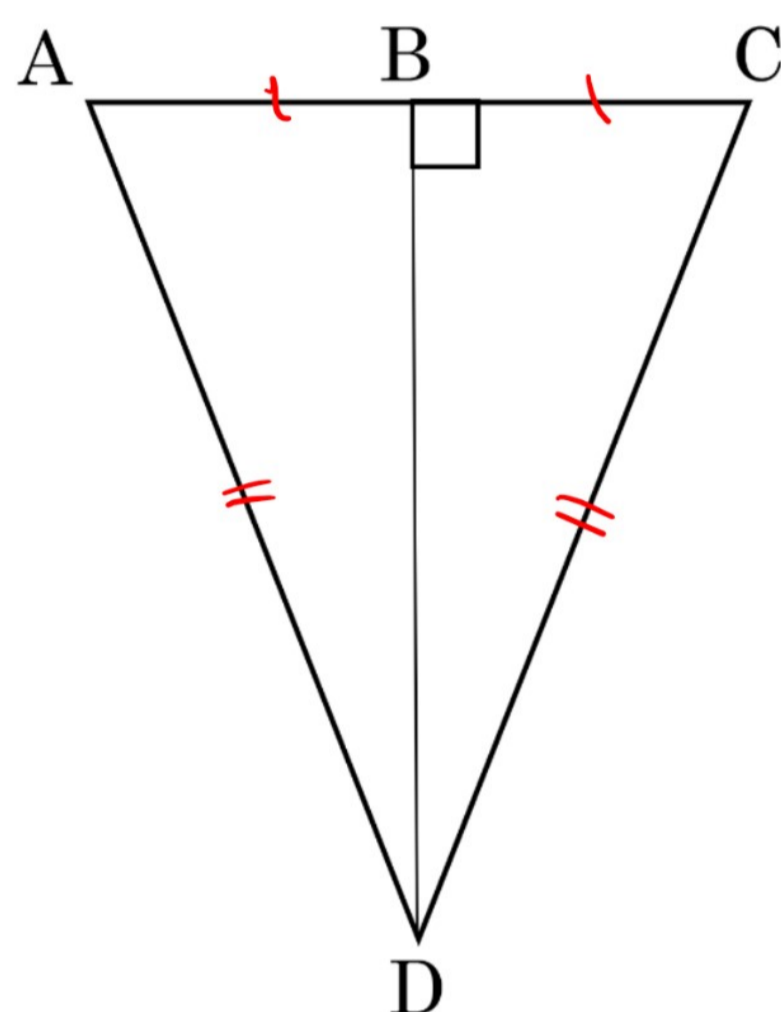
Answer: _____

(3 marks)



Q5. $\triangle ACD$ is an isosceles triangle.

Prove that $\triangle ABD$ is congruent to $\triangle BCD$.



- $\triangle ACD$ isosceles and $BD \perp$ to $AC \Rightarrow AB = BC$
 - BD is common to both
 - $AD = CD$ (isosceles)
- $\Rightarrow \triangle ABD, \triangle BCD$ congruent by SSS

Answer: _____

(3 marks)



Q6. Triangle A has angles, 41, 76 and 63 degrees.

Triangle B has angles, 41, 76 and 63 degrees.

Explain why triangles A and B are not necessarily congruent.

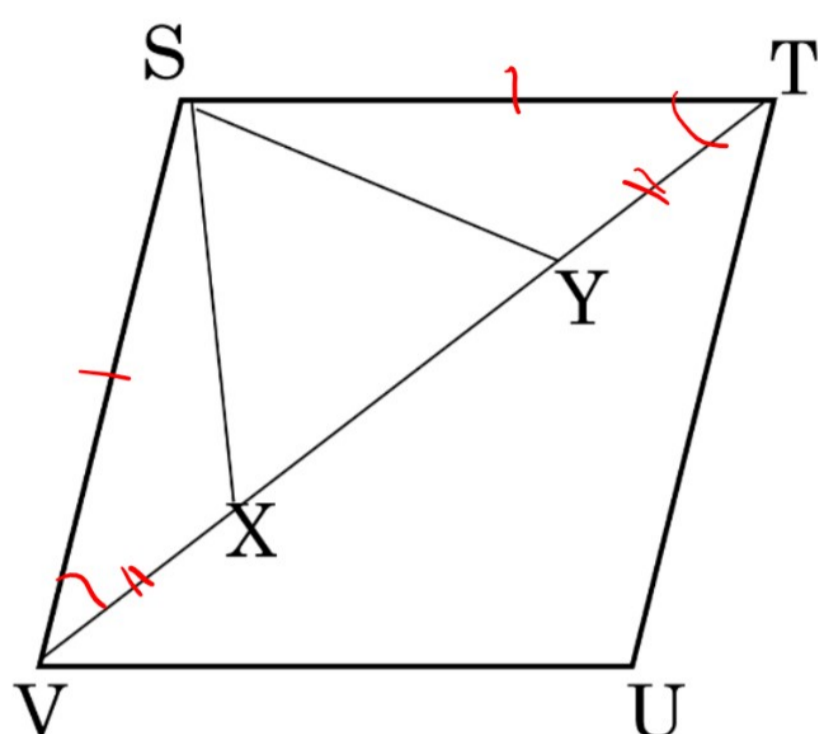
AAA is not a condition for congruence because the 2 triangles can have all the same angles, but one could be an enlargement of the other.

Answer: _____

(2 marks)



Q7. ABCD is a rhombus, and $XY = TY$.



Prove that triangle SVX is congruent to triangle STY.

- $VX = TY$ (given)
 - $SV = ST$ because STUV is a rhombus, all sides are equal
 - $\hat{SVX} = \hat{STY}$ because SVT is isosceles
- \therefore by SAS, $\triangle SVX$ and $\triangle STY$ are congruent.

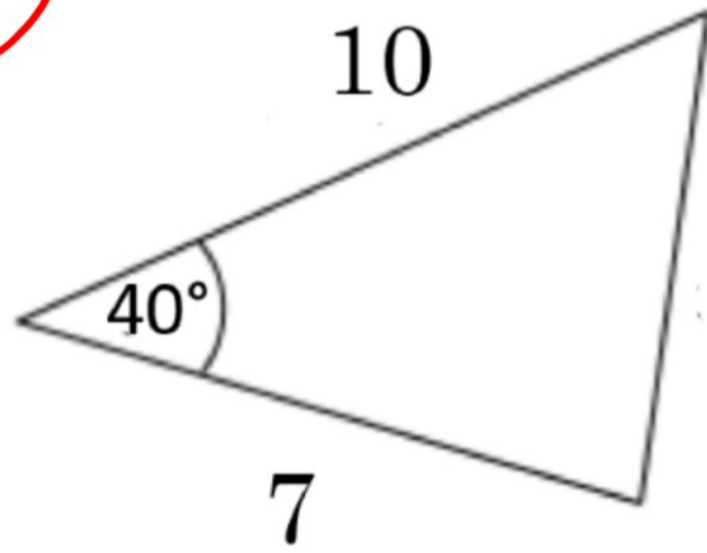
Answer: _____

(4 marks)

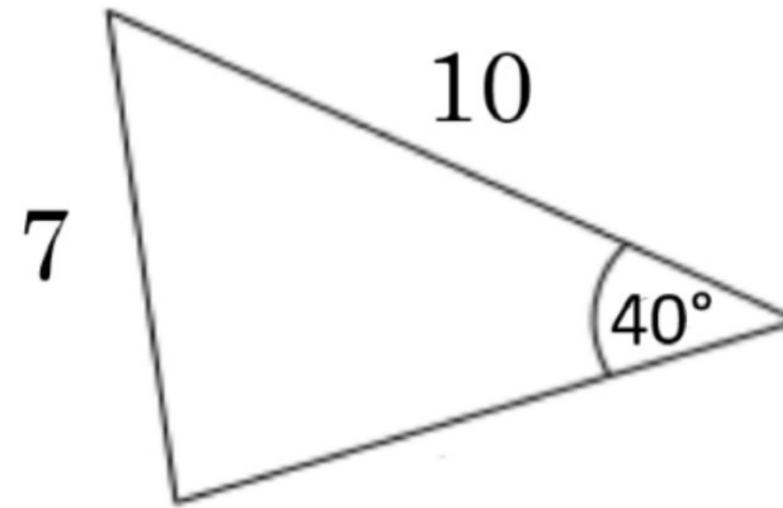


Q8. Identify which triangles are congruent to each other. Explain your reasoning carefully.

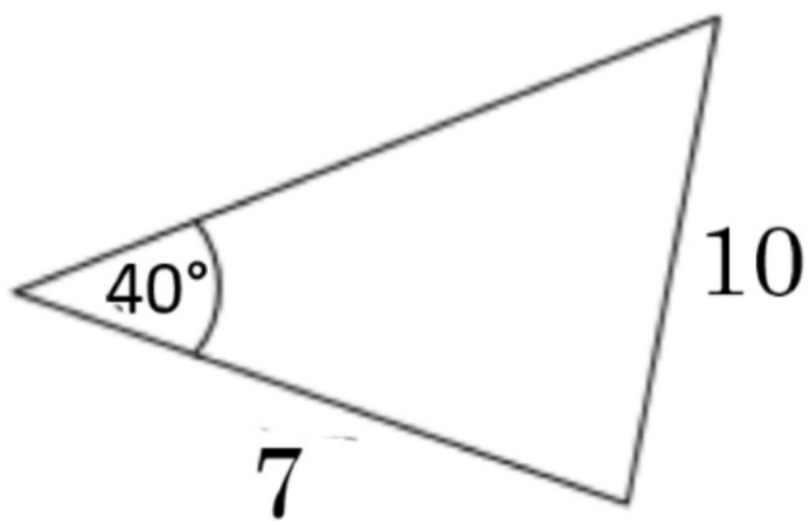
A



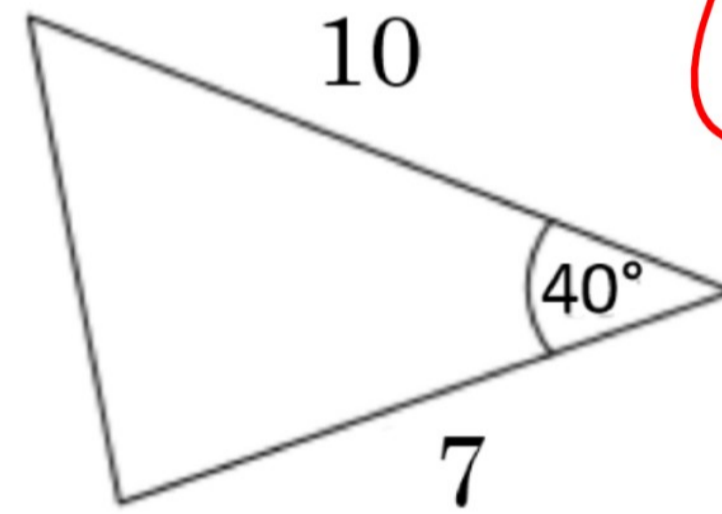
B



C



D



A, D are congruent, by SAS.

Answer: _____

(2 marks)