

AL MOATTASSEM INTERNATIONAL SCHOOL - JUBAIL

Level - 8 Mathematics

Revision worksheet - 1

Ch -4 Geometry

Congruence Solved

Solutions/ Answers;

1. A and B by AAS (corresponding side)

C and D by ASA

D and F by SAS

2. Angle $ABC = 180 - (70 + 50) = 180 - 120 = 60^\circ$.

Angle $EDF = 180 - (70 + 60) = 180 - 130 = 50^\circ$.

Hence, the triangles are congruent by ASA.

Note: AAS is also acceptable.

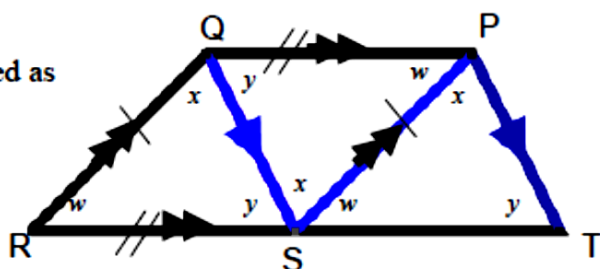
3. The three corresponding sides are equal.

Hence, the triangles are congruent by SSS.

Furthermore, both triangles are right-angled at P and S respectively,

by Pythagoras' Theorem. Hence, RHS and ASA also work.

4. All the angles have been labeled as shown to help.



Consider the triangles PST and QRS.

Angle $SPT = x = QST$ alternate angles, and angle $RQS = x = QSP$ alternate

Hence, angle $SPT = RQS$. Also $QR = PS$ (PQRS is a parallelogram) and

angle $QRS = w = PST$ (corresponding angles). Hence, by ASA, the triangles

PST and QRS are congruent and hence $TS = SR$. (Note: AAS also works)

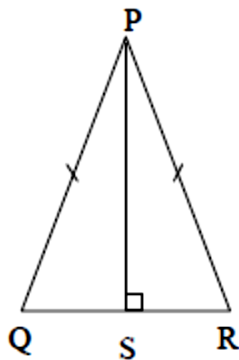
5. Consider triangles PSQ and PSR.

PS = PS common side

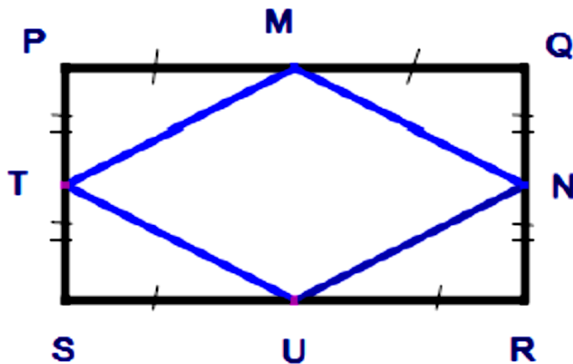
PQ = PR Isosceles triangle

Angle PSQ = 90° = angle PSR

Hence, by RHS the triangles are congruent and hence SQ = SR.

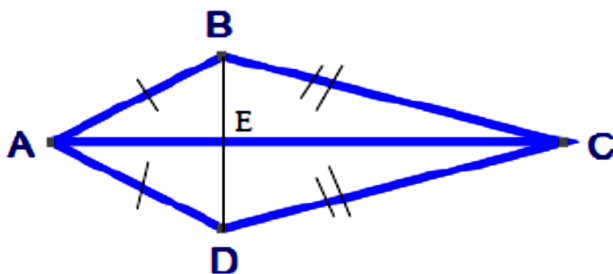


6.



- (a) $PM = UR$, $PT = NR$ and angle $MPT = 90^\circ = NRU$ (rectangle)
Hence, by SAS the triangles are congruent.
- (b) Yes, $TM = UN$ from (a), congruent triangles.
- (c) Yes, by SAS
- (d) Yes, because of the congruent triangles
- (e) Rhombus
- (f) Join M to U and T to N. The area of the rhombus is the same as the area of the rectangle.
Hence, Area = $8 \times 6 = 48 \text{ cm}^2$.

7.



- (a) $AB = AD$ given
 $BC = DC$ given
 $AC = AC$ common side
Hence, by SSS the triangles are congruent.
- (b) $AB = AD$ given
Angle $BAE = DAE$ from congruent triangles in (a)
 $AE = AE$ common side
Hence, the triangles are congruent by SAS
- (c) From (b), $ED = EB$ and E is the midpoint of BD.
Note also that angle $AED = AEB = 90^\circ$.
- (d) If you draw a rectangle around the kite, it becomes easy to see that the area of the kite is half the area of the rectangle.
Hence, area of kite $= \frac{1}{2} \times 12 \times 6 = 36 \text{ cm}^2$.