IX Homework - 13 (TRIANGLES - MCQs)

1) If $\triangle ABC \cong \triangle PQR$ and $\triangle ABC$ is not congruent to $\triangle RPQ$, then which of the following not true?
(a) $BC = PQ$ (b) $AC = PR$ (c) $QR = BC$ (d) $AB = PQ$

2) Which of the following is not a criterion for congruence of triangles?
(a) SAS (b) ASA (c) SSA (d) SSS

3) In $\triangle ABC$, $AB = AC$ and $\angle B = 50°$, then $\angle C =$
(a) 40° (b) 50° (c) 80° (d) 130°

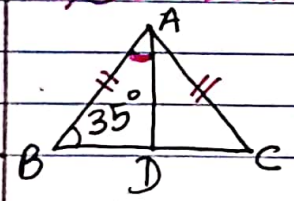
4) In $\triangle ABC$, $BC = AB$ and $\angle B = 80°$, then $\angle A =$
(a) 80° (b) 40° (c) 50° (d) 100°

5) In $\triangle PQR$, $\angle R = \angle P$, $QR = 4cm$ and $PR = 5cm$. Then the length of PQ is (a) 4cm (b) 5cm (c) 2cm (d) 2.5cm

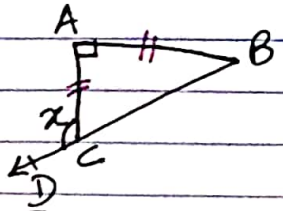
6) In $\triangle ABC$ and $\triangle DEF$, $AB = FD$ and $\angle A = \angle D$. The two triangles will be congruent by SAS axiom if
(a) $BC = EF$ (b) $AC = DE$ (c) $AC = EF$ (d) $BC = DE$

7) If $AB = QR$, $BC = PR$ and $CA = PQ$, then
(a) $\triangle ABC \cong \triangle PQR$ (b) $\triangle CBA \cong \triangle PRQ$ (c) $\triangle BAC \cong RPQ$
(d) $\triangle PQR \cong \triangle BCA$

8) It is given that $\triangle ABC \cong \triangle FDE$ and $AB = 5cm$, $\angle B = 40°$ and $\angle A = 80°$. Then which of the following is true?
(a) $DF = 5cm$, $\angle F = 60°$ (b) $DF = 5cm$, $\angle E = 60°$
(c) $DE = 5cm$, $\angle E = 60°$ (d) $DE = 5cm$, $\angle D = 40°$

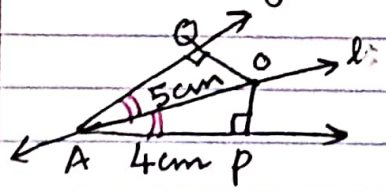
9) 

If AD is the median, then $\angle BAD =$
(a) 32° (b) 38° (c) 40° (d) 55°

10) 

If the measure of exterior angle ACD is x, then the value of x is
(a) 100° (b) 135° (c) 140° (d) 150°

11) The measure of each of the base angles of an isosceles triangle whose base angle is double the vertical angle is (a) 58° (b) 64° (c) 72° (d) 80°

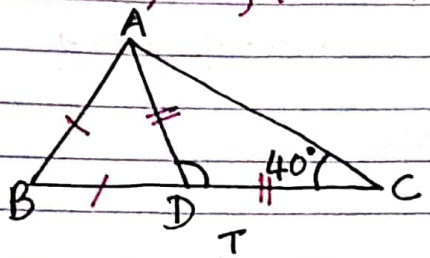
12) 

line l is the bisector of $\angle A$.
$AP = 4cm$; $OA = 5cm$, then $OQ =$ —
(a) 4cm (b) 12cm (c) 3cm (d) none of these

13) Which of the following set of measures can form a triangle?

(a) 90°, 10°, 90° (b) 60°, 50°, 90° (c) 90°, 60°, 30° (d) 95°, 15°, 92°

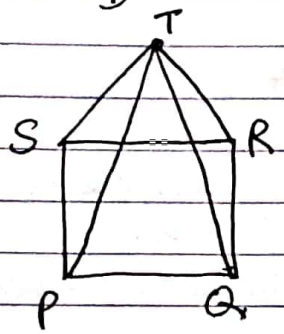
14)




$\angle ABC$ is

(a) 30° (b) 40° (c) 25° (d) 20°

15)

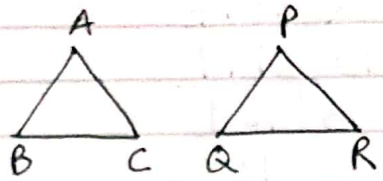



PQRS is a square and SRT is an equilateral $\triangle$.

Then $\angle TQR$ =

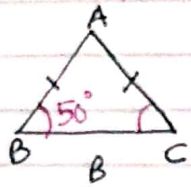
(a) 20° (b) 15° (c) 25° (d) 18°

IX Homework – 13 (Triangles)

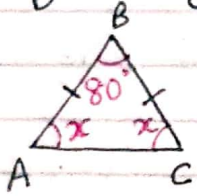
1) 


Since $\triangle ABC \cong PQR$,
$BC \neq PQ$
(a) is not true

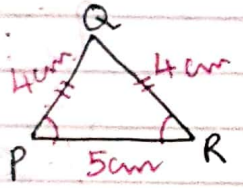
2) SSA (c)

3) 

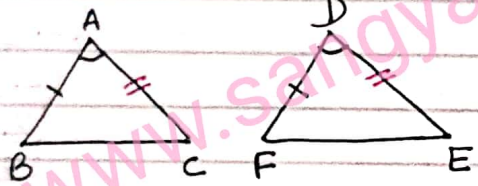

Since $AB = AC$, $\angle B = \angle C = 50°$ (b)

4) 

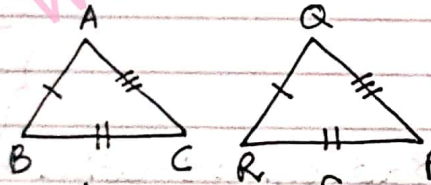

Since $AB = BC$, $\angle A = \angle C = x$
Then, $80° + x + x = 180°$ (angle sum property)
$2x = 100° \Rightarrow x = 50°$ (c)

5) 

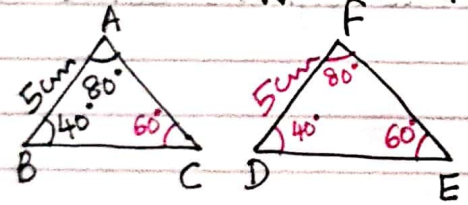

Since $\angle P = \angle R$, $PQ = QR = 4cm$ (a)

6) 


$AB = DF$ ; $\angle A = \angle D$ (given)
$AC = DE$ (b)
$\therefore \triangle ABC \cong \triangle DFE$ (SAS Congruency)

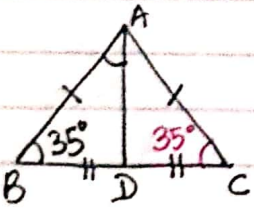
7) 


$AB = QR$, $BC = PR$, $CA = PQ$
then, $\triangle CBA \cong \triangle PRQ$
(SSS Congruency) (b)

8) 

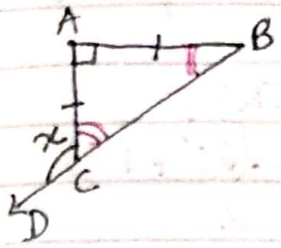

Using angle sum property in $\triangle ABC$, $\angle C = 180° - (40° + 80°)$
$= 180° - 120° = \underline{60°}$
$\therefore \angle E = 60°$

Thus $DF = 5cm$, $\angle E = 60°$ (b)

9) 


Since $AB = AC$, $\angle B = \angle C = 35°$
Then, using angle sum property in $\triangle ABC$,
$\angle A = 180° - (35° + 35°) = 180° - 70° = 110°$
Since $AB = AC$, AD is the perpendicular bisector of BC and also AD bisects $\angle A$.

$\therefore \angle BAD = \frac{1}{2}\angle A = \frac{1}{2} \times 110^\circ = 55^\circ$ (d)

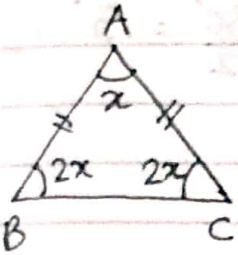
10) 


In rt. $\triangle ABC$, since $AB = AC$,

$\angle B = \angle C = \frac{180^\circ - 90^\circ}{2} = 45^\circ$

$\therefore x = 180^\circ - 45^\circ$ (linear pair)

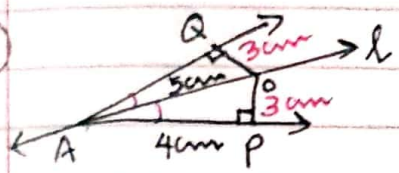
$= 135^\circ$ (b)

11) 


$x + 2x + 2x = 180^\circ$ (angle sum property)

$5x = 180^\circ \Rightarrow x = 36^\circ$

$\therefore \angle B = \angle C = 2x = 72^\circ$ (c)

12) 


In $\triangle OQA$ and $\triangle OPA$,

$\angle OQA = \angle OPA$ (each $90^\circ$)

$\angle OAQ = \angle OAP$ ($\because l$ bisects $\angle A$)

$OA = OA$ (common side)

$\therefore \triangle OQA \cong \triangle OPA$ (AAS Congruency)

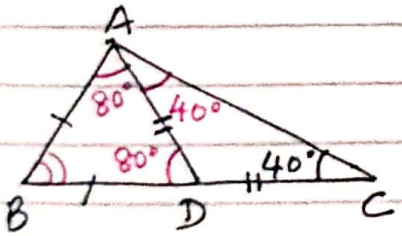
Thus $OP = OQ$ (by CPCT) $\longrightarrow$ (1)

In rt. $\triangle OAP$, $OP^2 = OA^2 - AP^2 = 5^2 - 4^2 = 25 - 16 = 9$ (Pythagoras Theorem)

$\therefore OP = 3$ cm

From eq: (1), $OQ = 3$ cm (c)

13) (c) $90^\circ + 60^\circ + 30^\circ = 180^\circ$ (by angle sum property, the given angles form a triangle)

14) 


Since $AD = DC$, $\angle DAC = \angle DCA = 40^\circ$

Using exterior angle property in $\triangle ADC$, $\angle ADB = \angle DAC + \angle DCA$

$= 40^\circ + 40^\circ = 80^\circ$

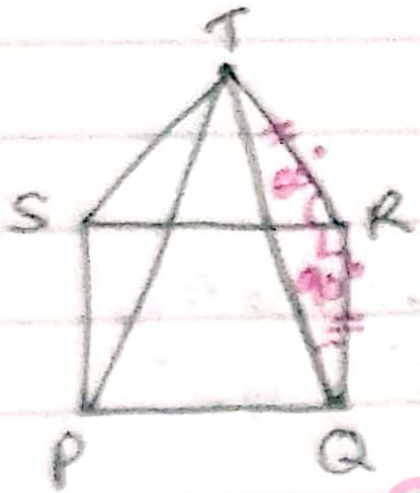
Since $AB = BD$, $\angle BAD = \angle BDA = 80^\circ$

Using angle sum property in $\triangle ABD$, $\angle ABD = 180^\circ - (80^\circ + 80^\circ)$

$= 180^\circ - 160^\circ = 20^\circ$

$\therefore \angle ABC = 20^\circ$ (d)

15)




$\angle TRS = 60^\circ$ ($\because \triangle TSR$ is an equilateral $\triangle$)

$\angle SRQ = 90^\circ$ ($\because$ PQRS is a square)

$\angle TRQ = 60^\circ + 90^\circ = 150^\circ$.

Since $TR = RQ$ in $\triangle TRQ$,

$$\angle RTQ = \angle RQT = \frac{180^\circ - (60^\circ + 90^\circ)}{2}$$

$$= \frac{180^\circ - 150^\circ}{2} = \frac{30^\circ}{2} = 15^\circ \text{ (b)}$$