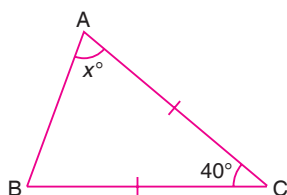


CHAPTER 14

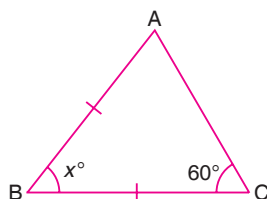
PROPERTIES OF TRIANGLES

More Questions for Practice

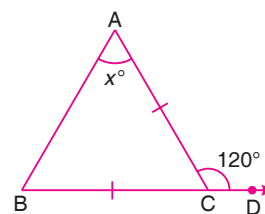
1. Find the value of x in each of the following figures:



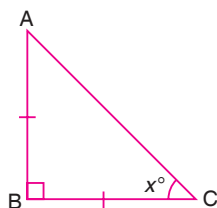
(a)



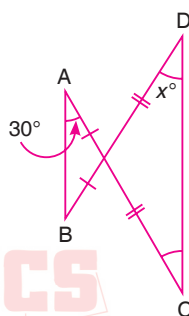
(b)



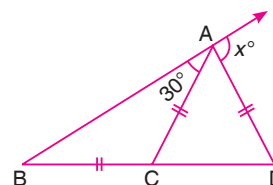
(c)



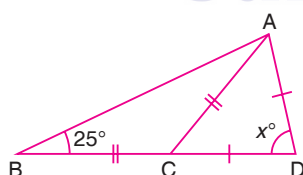
(d)



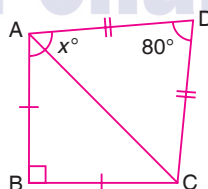
(e)



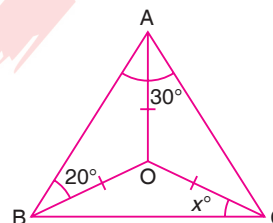
(f)



(g)



(h)



(i)

Fig. 14.1

- The angles of a triangle are in the ratio 3 : 4 : 5. Find the measure of the smallest angle.
- One of the angles of a triangle measures 80° and the other two angles are equal. Find the measure of each equal angle.
- Two acute angles of a right-angled triangle are equal. Find the measures of these two angles.
- In $\triangle ABC$, $\angle A = 50^\circ$, $\angle B = 70^\circ$ and the bisector of $\angle C$ meets AB at D . Find the measures of the angles of the triangles ADC and BDC .
- In $\triangle ABC$, $\angle A = 100^\circ$, AD bisects $\angle A$ and $AD \perp BC$. Find the measure of $\angle B$.
- The sides of a triangle are produced in order. Find the sum of the measures of the three exterior angles so formed.

8. ABC is a triangle in which $\angle B = \angle C$ and the ray AX bisects the exterior angle DAC. If $\angle DAX = 70^\circ$, find the measure of $\angle ACB$. Is $AX \parallel BC$?
9. One angle of a triangle is greater than the sum of the other two. What can you say about the measure of this angle? What type of triangle is this?
10. An exterior angle of a triangle measures 108° and its interior opposite angles are in the ratio 4 : 5. Find the measures of the angles of the triangle.
11. In ΔPQR , $\angle P : \angle Q : \angle R = 2 : 3 : 4$. Find $\angle P$, $\angle Q$ and $\angle R$.
12. In an isosceles triangle, each base angle is four times its vertical angle. Find each angle of the triangle.
13. The three angles of a triangle are represented by $\frac{13x}{3}$, $\frac{7x}{3}$ and $\frac{5x}{6}$. Find the measure of its obtuse angle.

14. In the adjoining figure, ABC and DBC are two isosceles triangles such that $\angle A = 40^\circ$ and $\angle D = 100^\circ$. Find $\angle ABD$.

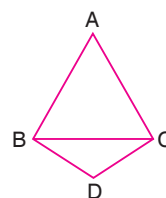
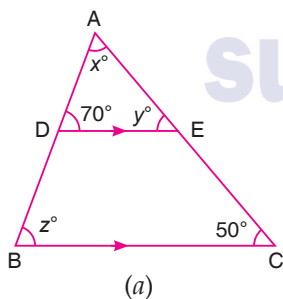
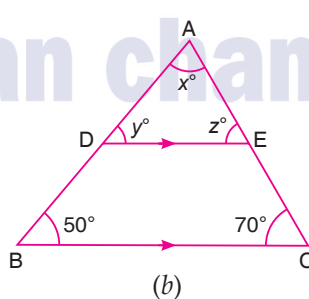


Fig. 14.2

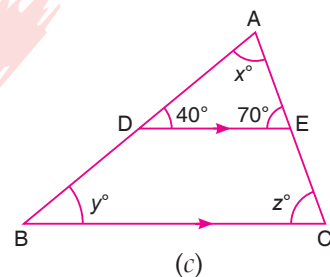
15. In Fig. 14.3 below, ABC is a triangle and line segment DE is parallel to BC. Find x , y and z from it.



(a)



(b)



(c)

Fig. 14.3

16. In Fig. 14.4 below, find the measures of $\angle x$ and $\angle y$.
17. In Fig. 14.5 below, find: (a) $\angle ACD$ (b) $\angle AED$.
18. In Fig. 14.6 below, find $\angle ABD$. Also, if $\angle ACB = 2\angle ABC$, find $\angle ABC$.

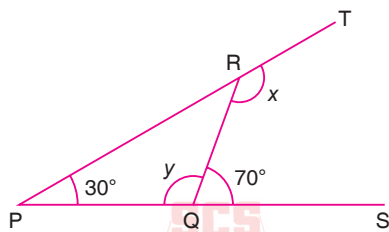


Fig. 14.4

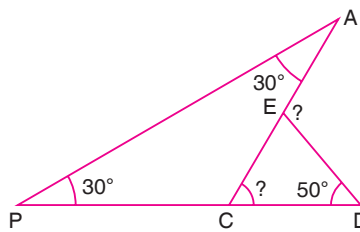


Fig. 14.5

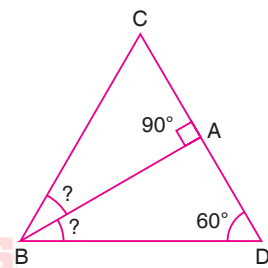


Fig. 14.6

19. Find the unknown marked angles in each of the following triangles:

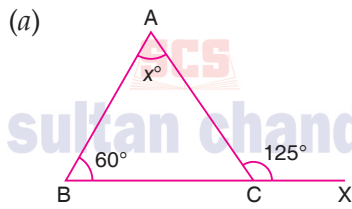


Fig. 14.7

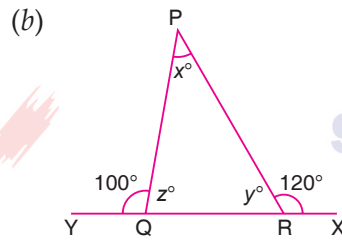


Fig. 14.8

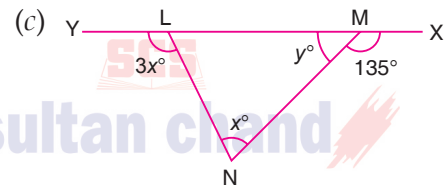


Fig. 14.9

20. In right-angled triangle ABC, right-angled at B, if $AB = 15$ cm, $AC = 17$ cm, find the length of (a) BC and (b) BM.

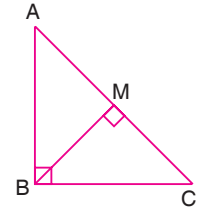


Fig. 14.10

ANSWERS

1. (a) 70 (b) 60 (c) 60 (d) 45 (e) 30 (f) 90
(g) 80 (h) 95 (i) 40
2. 45° 3. 50° 4. 45° each
5. For $\triangle ADC$, $\angle A = 50^\circ$, $\angle D = 100^\circ$, $\angle C = 30^\circ$
For $\triangle BDC$, $\angle B = 70^\circ$, $\angle D = 80^\circ$, $\angle C = 30^\circ$
6. 40° 7. 360° 8. 70° ; Yes 9. It is more than 90° , obtuse triangle.
10. $48^\circ, 60^\circ, 72^\circ$ 11. $\angle P = 40^\circ, \angle Q = 60^\circ, \angle R = 80^\circ$ 12. $20^\circ, 80^\circ, 80^\circ$
13. 104° 14. 110°
15. (a) $x = 60, y = 50, z = 70$ (b) $x = 70, y = 50, z = 60$ (c) $x = 70, y = 40, z = 70$
16. $x = 140^\circ; y = 110^\circ$ 17. (a) $\angle ACD = 60^\circ$; (b) $\angle AED = 110^\circ$
18. $\angle ABD = 30^\circ; \angle ABC = 30^\circ$.
19. (a) $x = 65$ (b) $x = 40; y = 60; z = 80$ (c) $x = 22\frac{1}{2}; y = 45$
20. (a) 8 cm (b) 7 cm (approx).