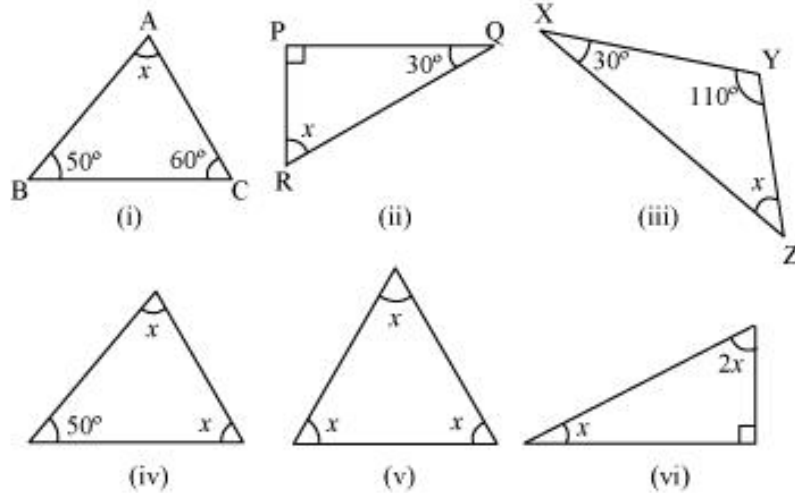




NCERT Solutions For Class 7 Maths The Triangle and its Properties
Exercise 6.3

Q1. Find the value of the unknown x in the following diagrams:



Ans:

The sum of all interior angles of a triangle is 180° . By using this property, these problems can be solved as follows.

(i) $x + 50^\circ + 60^\circ = 180^\circ$

$$x + 110^\circ = 180^\circ$$

$$x = 180^\circ - 110^\circ = 70^\circ$$

(ii) $x + 90^\circ + 30^\circ = 180^\circ$

$$x + 120^\circ = 180^\circ$$

$$x = 180^\circ - 120^\circ = 60^\circ$$

(iii) $x + 30^\circ + 110^\circ = 180^\circ$

$$x + 140^\circ = 180^\circ$$

$$x = 180^\circ - 140^\circ = 40^\circ$$

$$(iv) 50^{\circ} + x + x = 180^{\circ}$$

$$50^{\circ} + 2x = 180^{\circ}$$

$$2x = 180^{\circ} - 50^{\circ} = 130^{\circ}$$

$$x = \frac{130^{\circ}}{2} = 65^{\circ}$$

$$(v) x + x + x = 180^{\circ}$$

$$3x = 180^{\circ}$$

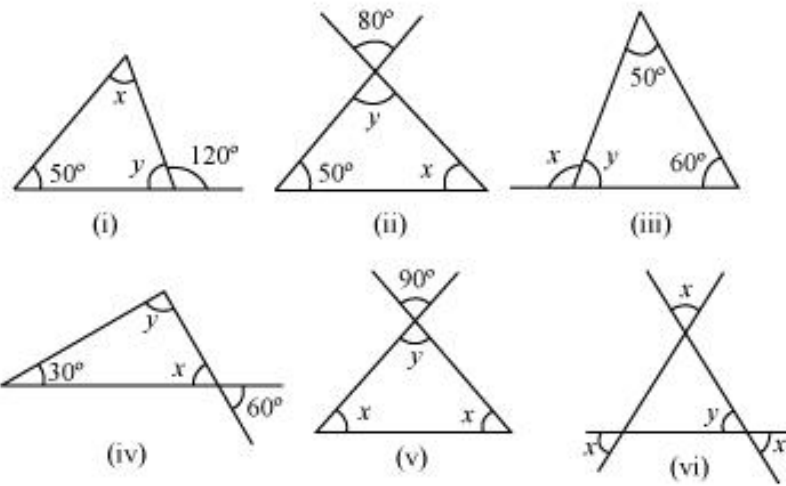
$$x = \frac{180}{3} = 60^{\circ}$$

$$(vi) x + 2x + 90^{\circ} = 180^{\circ}$$

$$3x = 180^{\circ} - 90^{\circ} = 90^{\circ}$$

$$x = \frac{90^{\circ}}{3} = 30^{\circ}$$

Q2. Find the value of the unknowns x and y in the following diagrams:



Ans:

(i) $y + 120^\circ = 180^\circ$ (Linear pair)

$$y = 180^\circ - 120^\circ = 60^\circ$$

$x + y + 50^\circ = 180^\circ$ (Angle sum property)

$$x + 60^\circ + 50^\circ = 180^\circ$$

$$x + 110^\circ = 180^\circ$$

$$x = 180^\circ - 110^\circ = 70^\circ$$

(ii) $y = 80^\circ$ (Vertically opposite angles)

$y + x + 50^\circ = 180^\circ$ (Angle sum property)

$$80^\circ + x + 50^\circ = 180^\circ$$

$$x + 130^\circ = 180^\circ$$

$$x = 180^\circ - 130^\circ = 50^\circ$$

(iii) $y + 50^\circ + 60^\circ = 180^\circ$ (Angle sum property)

$$y = 180^\circ - 60^\circ - 50^\circ = 70^\circ$$

$$x + y = 180^\circ \text{ (Linear pair)}$$

$$x = 180^\circ - y = 180^\circ - 70^\circ = 110^\circ$$

$$\text{(iv) } x = 60^\circ \text{ (Vertically opposite angles)}$$

$$30^\circ + x + y = 180^\circ$$

$$30^\circ + 60^\circ + y = 180^\circ$$

$$y = 180^\circ - 30^\circ - 60^\circ = 90^\circ$$

$$\text{(v) } y = 90^\circ \text{ (Vertically opposite angles)}$$

$$x + x + y = 180^\circ \text{ (Angle sum property)}$$

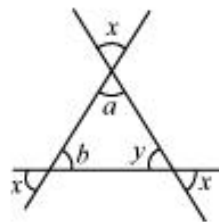
$$2x + y = 180^\circ$$

$$2x + 90^\circ = 180^\circ$$

$$2x = 180^\circ - 90^\circ = 90^\circ$$

$$x = \frac{90^\circ}{2} = 45^\circ$$

(vi)



$$y = x \text{ (Vertically opposite angles)}$$

$$a = x \text{ (Vertically opposite angles)}$$

$$b = x \text{ (Vertically opposite angles)}$$

$$a + b + y = 180^\circ \text{ (Angle sum property)}$$

$$x + x + x = 180^\circ$$

$$3x = 180^\circ$$

$$x = \frac{180^\circ}{3} = 60^\circ$$

$$y = x = 60^\circ$$

***** END *****