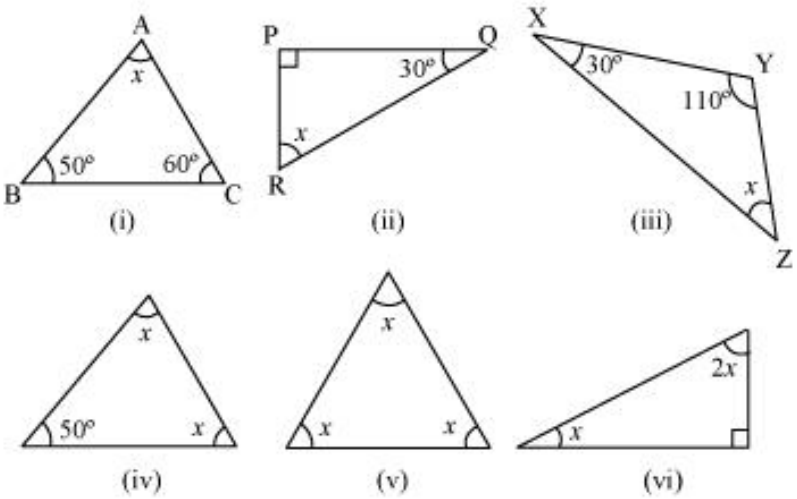
NCERT Solutions For Class 7 Maths The Triangle and its Properties Exercise 6.3

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) $x + 50° + 60° = 180°$

$x + 110° = 180°$

$x = 180° - 110° = 70°$

(ii) $x + 90° + 30° = 180°$

$x + 120° = 180°$

$x = 180° - 120° = 60°$

(iii) $x + 30° + 110° = 180°$

$x + 140° = 180°$

$x = 180° - 140° = 40°$

(iv) $50° + x + x = 180°$

$50° + 2x = 180°$

$2x = 180° - 50° = 130°$

$$x = \frac{130°}{2} = 65°$$

(v) $x + x + x = 180°$

$3x = 180°$

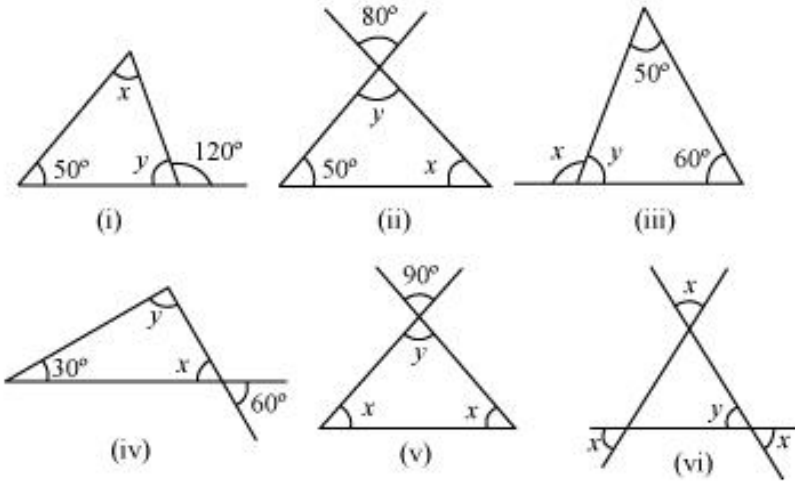
$$x = \frac{180}{3} = 60°$$

(vi) $x + 2x + 90° = 180°$

$3x = 180° - 90° = 90°$

$$x = \frac{90°}{3} = 30°$$

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



Ans:

(i) $y + 120° = 180°$ (Linear pair)

$y = 180° - 120° = 60°$

$x + y + 50° = 180°$ (Angle sum property)

$x + 60° + 50° = 180°$

$x + 110° = 180°$

$x = 180° - 110° = 70°$

(ii) $y = 80°$ (Vertically opposite angles)

$y + x + 50° = 180°$ (Angle sum property)

$80° + x + 50° = 180°$

$x + 130° = 180°$

$x = 180° - 130° = 50°$

(iii) $y + 50° + 60° = 180°$ (Angle sum property)

$y = 180° - 60° - 50° = 70°$

$x + y = 180°$ (Linear pair)

$x = 180° - y = 180° - 70° = 110°$

(iv) $x = 60°$ (Vertically opposite angles)

$30° + x + y = 180°$

$30° + 60° + y = 180°$

$y = 180° - 30° - 60° = 90°$

(v) $y = 90°$ (Vertically opposite angles)

$x + x + y = 180°$ (Angle sum property)

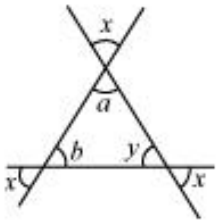
$2x + y = 180°$

$2x + 90° = 180°$

$2x = 180° - 90° = 90°$

$$x = \frac{90°}{2} = 45°$$

(vi)



$y = x$ (Vertically opposite angles)

$a = x$ (Vertically opposite angles)

$b = x$ (Vertically opposite angles)

$a + b + y = 180°$ (Angle sum property)

$x + x + x = 180°$

$3x = 180°$

$$x = \frac{180°}{3} = 60°$$

$y = x = 60°$

********** END **********