

## THE PYTHAGOREAN THEOREM

Exercises(page-3):

1. By the Pythagorean theorem, we have:  $x^2 + 5^2 = 13^2$ . That is,

$$x^2 + 25 = 169 \Rightarrow x^2 = 144 \Rightarrow x = \pm 12.$$

Since  $x$  can not have a negative value, we can conclude that  $x = 12$ .

2.  $8^2 + 4^2 = x^2 \Rightarrow x^2 = 80 \Rightarrow x = \pm\sqrt{80} \Rightarrow x = 4\sqrt{5}$ .

3.  $x^2 + 5^2 = (5\sqrt{3})^2 \Rightarrow x^2 + 25 = 75 \Rightarrow x^2 = 50 \Rightarrow x = \pm\sqrt{50} \Rightarrow x = 5\sqrt{2}$ .