1. The sides of a right-angled triangle containing the right angle are $4x$ cm and $(2x - 1)$ cm. If the area of the triangle is 30 cm^2; calculate the lengths of its sides.

2. The hypotenuse of a right-angled triangle is 26 cm and the sum of other two sides is 34 cm. Find the lengths of its sides.

3. The sides of a right-angled triangle are $(x - 1)$ cm, $3x$ cm and $(3x + 1)$ cm. Find :
   (i) the value of x,
   (ii) the lengths of its sides,
   (iii) its area.

4. The hypotenuse of a right-angled triangle exceeds one side by 1 cm and the other side by 18 cm; find the lengths of the sides of the triangle.

5. The diagonal of a rectangle is 60 m more than its shorter side and the larger side is 30 m more than the shorter side. Find the sides of the rectangle.

6. The perimeter of a rectangle is 104 m and its area is 640 m^2. Find its length and breadth.

7. A footpath of uniform width runs round the inside of a rectangular field 32 m long and 24 m wide. If the path occupies 208 m^2, find the width of the footpath.

8. Two squares have sides x cm and $(x + 4)$ cm. The sum of their areas is 656 sq. cm. Express this as an algebraic equation in x and solve the equation to find the sides of the squares.

9. The dimensions of a rectangular field are 50 m by 40 m. A flower bed is prepared inside this field leaving a gravel path of uniform width all around the flower bed. The total cost of laying the flower bed and gravelling the path at ₹ 30 and ₹ 20 per square metre, respectively, is ₹ 52,000. Find the width of the gravel path.

10. An area is paved with square tiles of a certain size and the number required is 128. If the tiles had been 2 cm smaller each way, 200 tiles would have been needed to pave the same area. Find the size of the larger tiles.

11. A farmer has 70 m of fencing, with which he encloses three sides of a rectangular sheep

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1. The speed of an ordinary train is x km per hr and that of an express train is $(x + 25)$ km per hr.
   (i) Find the time taken by each train to cover 300 km.
   (ii) If the ordinary train takes 2 hrs more than the express train; calculate the speed of the express train.

2. If the speed of a car is increased by 10 km per hr, it takes 18 minutes less to cover a distance of 36 km. Find the speed of the car.

3. If the speed of an aeroplane is reduced by 40 km per hr, it takes 20 minutes more to cover 1200 km. Find the speed of the aeroplane.

4. A car covers a distance of 400 km at a certain speed. Had the speed been 12 km/h more, the time taken for the journey would have been 1 hour 40 minutes less. Find the original speed of the car. **[2012]**

5. A girl goes to her friend's house, which is at a distance of 12 km. She covers half of the distance at a speed of x km/hr and the remaining distance at a speed of $(x + 2)$ km/hr. If she takes 2 hrs 30 minutes to cover the whole distance, find 'x'.

6. A car made a run of 390 km in 'x' hours. If the speed had been 4 km/hour more, it would have taken 2 hours less for the journey. Find 'x'.

7. A goods train leaves a station at 6 p.m., followed by an express train which leaves at 8 p.m. and travels 20 km/hour faster than the goods train. The express train arrives at a station, 1040 km away, 36 minutes before the goods train. Assuming that the speeds of both the trains remain constant between the two stations; calculate their speeds.

8. A man bought an article for ₹ x and sold it for ₹ 16. If his loss was x percent, find the cost price of the article.

9. A trader bought an article for ₹ x and sold it for ₹ 52, thereby making a profit of $(x - 10)$ percent on his outlay. Calculate the cost price.

10. By selling a chair for ₹ 75, Mohan gained as much percent as its cost. Calculate the cost of the chair.