

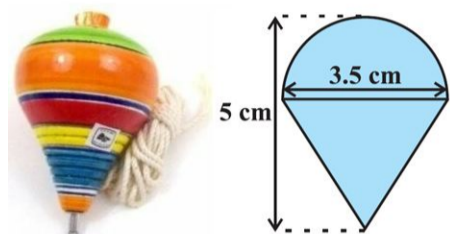
QB365 QUESTION BANK SOFTWARE

10th Maths CBSE Important Case Study Questions for Surface Areas And Volumes 2024

SECTION A

2 x 4 = 8

1) Rasheed is very happy for his birthday celebration. He got lot of birthday gifts in his party. Out of all birthday gifts, he liked a playing top (lattu) most, which surprisingly had no colour on it. He wanted to colour it with his crayons. The top is shaped like a cone surmounted by a hemisphere (see the below figure). The entire top is 5 cm in height and the diameter of the top is 3.5 cm.



(a) What is height of the cone?

- (i) 5 cm (ii) 3 cm (iii) 3.25 cm (iv) 4 cm

(b) What is slant height of the cone?

- (i) 5 cm (ii) 3.7 cm (iii) 3.25 cm (iv) 4 cm

(c) What is the Curved Surface Area of the cone?

- (i) 19.5 cm² (ii) 20.35 cm² (iii) 20.5 cm² (iv) 19.25 cm²

(d) What is the Curved Surface Area of the hemisphere?

- (i) 19.5 cm² (ii) 20.35 cm² (iii) 20.5 cm² (iv) 19.25 cm²

(e) What is the Total Surface Area of the toy?

- (i) 39.6 cm² (ii) 39.35 cm² (iii) 39.5 cm² (iv) 39.85 cm²

Answer : (a) (iii) Height of the cone = height of the top – height (radius) of the hemispherical part
 $= 5 - (3.5/2) = 5 - 1.75$
 $= 3.25$ cm

(b) (ii) Slant height of the cone $(l) = \sqrt{r^2 + h^2}$
 $= \sqrt{\left(\frac{3.5}{2}\right)^2 + (3.25)^2}$ cm
 $= 3.7$ cm (approx)

(c) (iii) CSA of cone $= \pi r l = \left(\frac{22}{7} \times \frac{3.5}{2} \times 3.7\right)$ cm²
 $= 20.35$ cm²

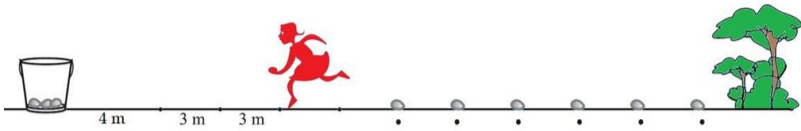
(d) (iv) Curved surface area of the hemisphere $= 2\pi r^2$
 $= \left(2 \times \frac{22}{7} \times \frac{3.5}{2} \times \frac{3.5}{2}\right)$ cm²

$= 19.25$ cm²

(e) (i) Total Surface Area of the toy = CSA of hemisphere + CSA of cone
 $= 19.25 + 20.35$ cm²
 $= 39.6$ cm²

2) In a potato race, a bucket is placed at the starting point, which is 4 m from the first potato, and the other potatoes are placed 3 m apart in a straight line. There are ten potatoes in the line (see below figure).

A competitor starts from the bucket, picks up the nearest potato, runs back with it, drops it in the bucket, runs back to pick up the next potato, runs to the bucket to drop it in, and she continues in the same way until all the potatoes are in the bucket



(a) What is the distance covered by the competitor in first potato?

(a) 10m (b) 8m (c) 12m (d) 14m

(ii) What is the distance covered by the competitor in second potato?

(a) 14 m (b) 12 m (c) 10 m (d) 8m

(iii) What is the distance covered by the competitor in fourth potato?

(a) 22 m (b) 24 m (c) 26 m (d) 28 m

(iv) What is the total distance covered by the competitor in first and second potato?

(a) 22 m (b) 24 m (c) 26 m (d) 30 m

(v) If the A.P. 8, 14, 20, ..., then find the common difference

(a) 4 (b) 8 (c) 12 (d) 6

Answer : (i) (b) 8m

(ii) (a) 14m

(iii) (c) 26m

(iv) (a) 22m

(v) (d) 6m