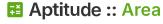


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## **Exercise: Area - General Questions**

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- 1. The ratio between the length and the breadth of a rectangular park is 3:2. If a man cycling along the boundary of the park at the speed of 12 km/hr completes one round in 8 minutes, then the area of the park (in sq. m) is:
  - **(A)** 15360
  - **B** 153600
  - **©** 30720
  - **1** 307200

Answer: Option (B)

**Explanation:** 

Perimeter = Distance covered in 8 min. =  $\left(\frac{12000}{60} \times 8\right)$ m = 1600 m.

Let length = 3x metres and breadth = 2x metres.

Then, 2(3x + 2x) = 1600 or x = 160.

- Length = 480 m and Breadth = 320 m.
- $\therefore$  Area = (480 × 320) m<sup>2</sup> = 153600 m<sup>2</sup>.









- 2. An error 2% in excess is made while measuring the side of a square. The percentage of error in the calculated area of the square is:
  - **(A)** 2%
  - **(B)** 2.02%
  - **(c)** 4%
  - **(1)** 4.04%

Answer: Option (1)

## **Explanation:**

100 cm is read as 102 cm.

 $A_1 = (100 \times 100) \text{ cm}^2 \text{ and } A_2 (102 \times 102) \text{ cm}^2.$ 

 $(A_2 - A_1) = [(102)^2 - (100)^2]$ = (102 + 100) x (102 - 100) = 404 cm<sup>2</sup>.

 $\therefore \text{ Percentage error} = \left(\frac{404}{100 \times 100} \times 100\right)\% = 4.04\%$ 









- 3. The ratio between the perimeter and the breadth of a rectangle is 5 : 1. If the area of the rectangle is 216 sq. cm, what is the length of the rectangle?
  - **(A)** 16 cm
  - **B** 18 cm
  - © 24 cm

- (I) Data inadequate
- (E) None of these

Answer: Option (B)

# **Explanation:**

$$\frac{2(l+b)}{b}=\frac{5}{1}$$

$$\Rightarrow 2l + 2b = 5b$$

$$\Rightarrow 3b = 2l$$

$$b = \frac{2}{3}I$$

Then, Area =  $216 \text{ cm}^2$ 

$$\Rightarrow$$
 / x  $b$  = 216

$$\Rightarrow$$
/ x  $\frac{2}{3}$ / = 216

$$\Rightarrow$$
  $I^2 = 324$ 

$$\Rightarrow$$
 / = 18 cm.









- 4. The percentage increase in the area of a rectangle, if each of its sides is increased by 20% is:
  - **(A)** 40%
  - **(B)** 42%
  - **©** 44%
  - **(1)** 46%

Answer: Option (C)

### **Explanation:**

Let original length = x metres and original breadth = y metres.

Original area = (xy) m<sup>2</sup>.

New length = 
$$\left(\frac{120}{100}x\right)$$
m =  $\left(\frac{6}{5}x\right)$ m.

New breadth = 
$$\left(\frac{120}{100}y\right)$$
m =  $\left(\frac{6}{5}y\right)$ m.

New Area = 
$$\left(\frac{6}{5}x \times \frac{6}{5}y\right)$$
  $m^2 = \left(\frac{36}{25}xy\right)$   $m^2$ .

The difference between the original area = xy and new-area 36/25 xy is

- = (36/25)xy xy
- = xy(36/25 1)
- = xy(11/25) or (11/25)xy
- ∴ Increase % =  $\left(\frac{11}{25}xy \times \frac{1}{xy} \times 100\right)$ % = 44%.

Video Explanation: https://youtu.be/I3jLjLPn1W4









- 5. A rectangular park 60 m long and 40 m wide has two concrete crossroads running in the middle of the park and rest of the park has been used as a lawn. If the area of the lawn is 2109 sq. m, then what is the width of the road?
  - **(A)** 2.91 m
  - **B** 3 m
  - **©** 5.82 m
  - (I) None of these

**Answer:** Option **B** 

#### **Explanation:**

Area of the park =  $(60 \times 40) \text{ m}^2 = 2400 \text{ m}^2$ .

Area of the lawn =  $2109 \text{ m}^2$ .

 $\therefore$  Area of the crossroads = (2400 - 2109) m<sup>2</sup> = 291 m<sup>2</sup>.

Let the width of the road be x metres. Then,

$$60x + 40x - x^2 = 291$$

$$\Rightarrow x^2 - 100x + 291 = 0$$

$$\Rightarrow$$
 (x - 97)(x - 3) = 0

$$\Rightarrow x = 3$$
.

Video Explanation: https://youtu.be/R3CtrAKGxkc







