NTS GAT General Past Papers Questions

Quantitative – Exam No. 19

Radius, Distance & Revolutions

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Formulas:

1. Radius of the wheel:

$$R = \frac{7S}{44N}$$

2. Diameter of the wheel:

$$D = \frac{7S}{22N}$$

3. Distance travelled:

$$S = \frac{44RN}{7} = \frac{22DN}{7}$$

4. Revolutions completed:

$$N = \frac{7S}{44R} = \frac{7S}{22D}$$

Where:

$$R = Radius\ of\ the\ wheel$$

$$D = Diameter\ of\ the\ wheel$$

$$S = Distance\ travelled$$

$$N = Revolutions\ completed$$

5. Conversion:

$$1\ km = 1000\ m$$

Exercise:

1. If a wheel covers 88 km distance in 1000 revolutions, then find the radius of the wheel? (PP)

Solution:

$$R = \frac{7S}{44N}$$

$$R = \frac{7 \times 88 \times 1000}{44 \times 1000}$$

$$R = 7 \times 2$$

$$R = 14\,m$$

2. If a 28 m radius wheel covers 77 km distance, then find the number of revolutions completed by the wheel?

Solution:

$$N = \frac{7S}{44R}$$

$$N = \frac{7 \times 77 \times 1000}{44 \times 28}$$

$$N = \frac{7000}{16}$$

$$N = 437.5$$

3. If a 14 m diameter wheel completes 220 revolutions, then find the distance covered by the wheel?

Solution:

$$S = \frac{22DN}{7}$$

$$S = \frac{22 \times 14 \times 220}{7}$$

$$S = 22 \times 2 \times 220$$

$$S = 9680\,m = 9.68\,km$$

4. If a wheel covers 44 km distance in 500 revolutions, then find the diameter of the wheel? (PP)

Solution:

$$D = \frac{7S}{22N}$$

$$D = \frac{7 \times 44 \times 1000}{22 \times 500}$$

$$D = \frac{7 \times 2 \times 2}{1 \times 1}$$

$$D = 28\ m$$

5. If a 42 m radius wheel completes 66 revolutions, then find the distance covered by the wheel?

Solution:

$$S = \frac{44RN}{7}$$

$$S = \frac{44 \times 42 \times 66}{7}$$

$$S = 44 \times 6 \times 66$$

$$S = 17424\ m = 17.424\ km$$

6. If a 42 m diameter wheel covers 66 km distance, then find the number of revolutions completed by the wheel?

Solution:

$$N = \frac{7S}{22D}$$

$$N = \frac{7 \times 66 \times 1000}{22 \times 42}$$

$$N = \frac{3 \times 1000}{6}$$

$$N = 500$$