

1 A wildlife park covers an area of 18 hectares.

(a) The 18 hectares is divided between enclosures, paths and buildings in the ratio

$$\text{enclosures} : \text{paths} : \text{buildings} = 11 : 14 : 5.$$

(i) Show that the area for enclosures is 6.6 hectares.

$$\begin{aligned} & \frac{11}{11+14+5} \times 18 \text{ hectares} \\ &= \frac{11}{30} \times 18 \\ &= 6.6 \text{ hectares} \end{aligned}$$

[1]

(ii) Calculate the area for paths and the area for buildings.

$$\begin{aligned} \text{Paths: } & \frac{14}{11+14+5} \times 18 \text{ hectares} \\ &= \frac{14}{30} \times 18 \\ &= 8.4 \text{ hectares} \end{aligned}$$

$$\begin{aligned} \text{Buildings: } & \frac{5}{11+14+5} \times 18 \text{ hectares} \\ &= \frac{5}{30} \times 18 \\ &= 3 \text{ hectares} \end{aligned}$$

Paths 8.4 hectares

Buildings 3 hectares [2]

(b) Of the 6.6 hectares for enclosures, $\frac{7}{11}$ is for mammals and 30% is for reptiles.

Calculate the area for mammals and the area for reptiles.

$$\begin{aligned} \text{Mammals: } & \frac{7}{11} \times 6.6 \text{ hectares} \\ &= 4.2 \text{ hectares} \end{aligned}$$

$$\begin{aligned} \text{Reptiles: } & \frac{30}{100} \times 6.6 \text{ hectares} \\ &= 1.98 \text{ hectares} \end{aligned}$$

Mammals 4.2 hectares

Reptiles 1.98 hectares [2]