# Enough Space For A Leopard?

## Shape And Word Problems

This is Pablo the leopard. Sadly, he lives in a circus and is forced to perform tricks for the public every day. His circus trailer, where he spends 90% of his time is only 1.5m x 2.5m.

**Rounding your answer to the nearest whole number, work out the area of Pablo's circus trailer?**

**Rounded answer: _____m²**

**In the wild Pablo would live in a large territory like this one:**
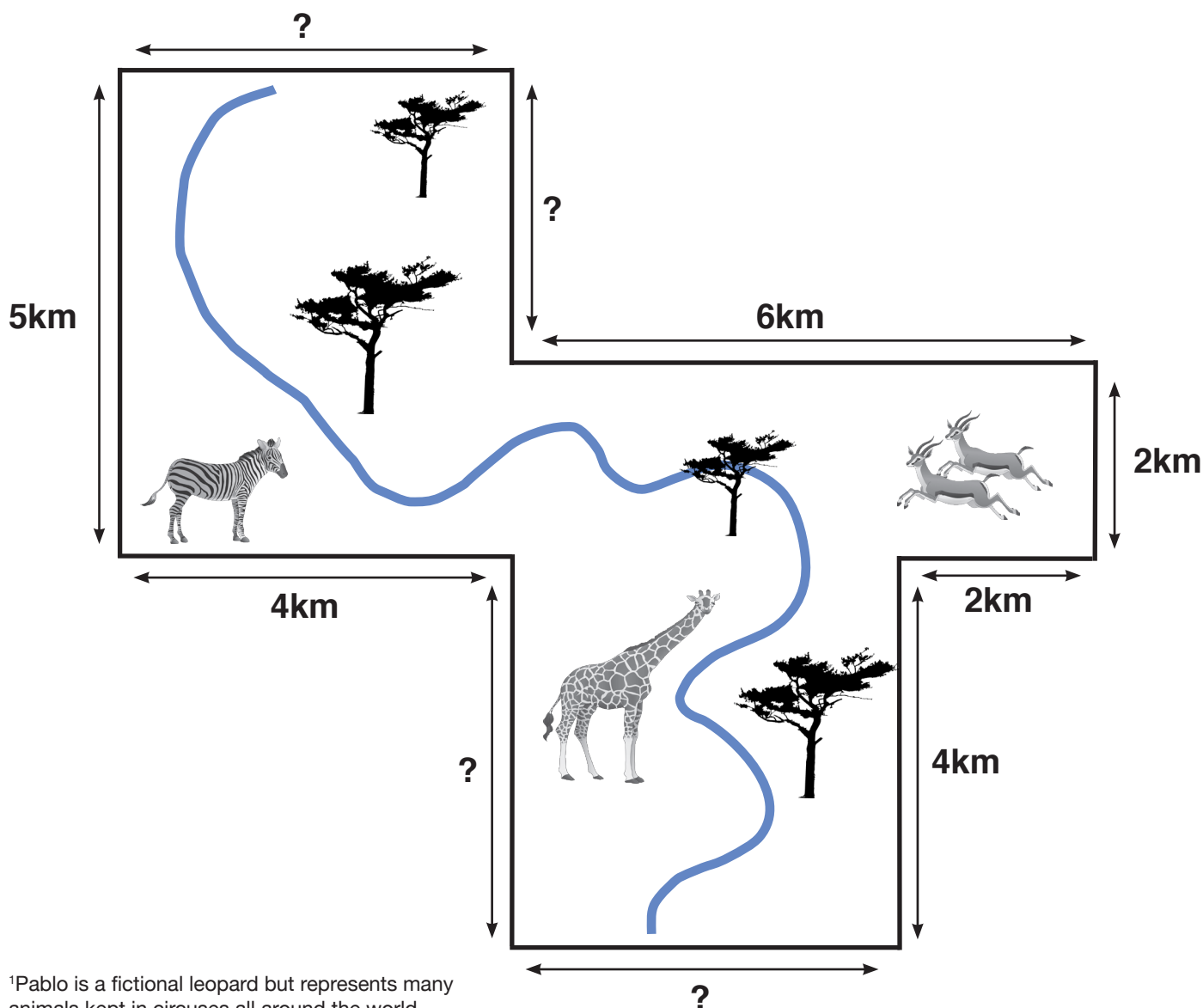
¹Pablo is a fictional leopard but represents many animals kept in circuses all around the world

In the wild Pablo would patrol the perimeter of his territory most days in order to scent mark. Fighting is a last resort for leopards, so scent marking lets other leopards know this is his territory, and warns them to stay away.

**What would the perimeter around Pablo's territory be?**

**Top Tip:** Fill in the missing measurements around the edge of the composite shape first to help you.

_____km

**What would the total area of Pablo's territory be?**

**Top Tip:** Remember to break the composite shape up into rectangles and squares to help you work out the area.

_____km²

**How much bigger would Pablo's territory in the wild be compared to his circus trailer? Use the space below to work out your answer.**

**Top Tip:** Remember, you will need to convert your measurements to the same unit in order to find the correct answer.

_____ times bigger

Leopards have large territories in the wild, which contain resources, such as water and shelter, that they need to survive and carry out natural behaviours. **What can you spot in the leopard territory that would help Pablo survive in the wild?**

_____

_____

**Considering the size difference between a circus trailer and a wild leopard territory, do you think wild animals such as leopards should be kept in captivity? Explain your answer.**

_____

_____

Born Free operates two sanctuaries within Shamwari Private Game Reserve in the Eastern Cape, South Africa, for lions and leopards rescued from zoos, circuses and other captive facilities.

**To find out more about their stories, visit:**
**www.bornfree.org.uk/shamwari-big-cat-rescue-sanctuary**

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## Explanation And Answer Sheet

Word problems can be tricky. Children not only need to work out the correct answer, but also what method(s) to use in order to reach it. Below we have provided the answers alongside some examples of how to complete each word problem, so that you can support your child's learning.

**Rounding your answer to the nearest whole number, work out the area of Pablo's circus trailer?**

**Area:** Area is the amount of space within a 2D shape. To find the area of a square or rectangle you must multiply the length by width. The answer will always be 'squared'. Remember to include the ² symbol in your answers.

**How to work it out:**

$$
\begin{array}{r}
1 \; . \; 5 \\
\times \quad 2 \; . \; 5 \\
\hline
\end{array}
$$

$0.5 \times 0.5 = \quad 0 \,.\, 2 \, 5$
$0.5 \times 1 = \quad 0 \,.\, 5 \, 0$
$2 \times 0.5 = \quad 1 \,.\, 0 \, 0$
$2 \times 1 = \quad 2 \,.\, 0 \, 0$

$+ \qquad \underline{3 \,.\, 7 \, 5}$

To find the area of the base of the circus trailer you must multiply the width by length – 1.5m x 2.5m.

Remember to multiply each part of the numbers together, as shown in the diagram opposite. You can create a running total if that is easier to work with, then simply add to find the total area.

To round, you simplify the number to nearest whole number. 3.75 is closer to 4 than 3, so you would round up.

**Area = 1.5m X 2.5m = 3.75m²**

**3.75m² rounded = 4m²**

**What would the perimeter around Pablo's territory be?**

**Perimeter:** This is the entire measurement around the outside of a 2D shape. To work out the perimeter, add up the lengths of all the sides.

To work out the perimeter of Pablo's, first your child will need to work out all the outer measurements of the composite shape. Look at the measurements that have already been provided to help work this out.
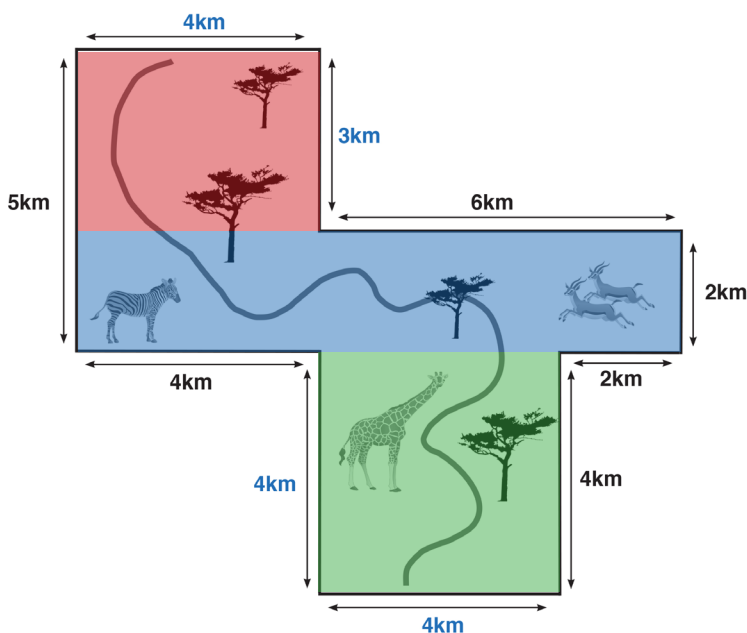
Below are the missing measurements:
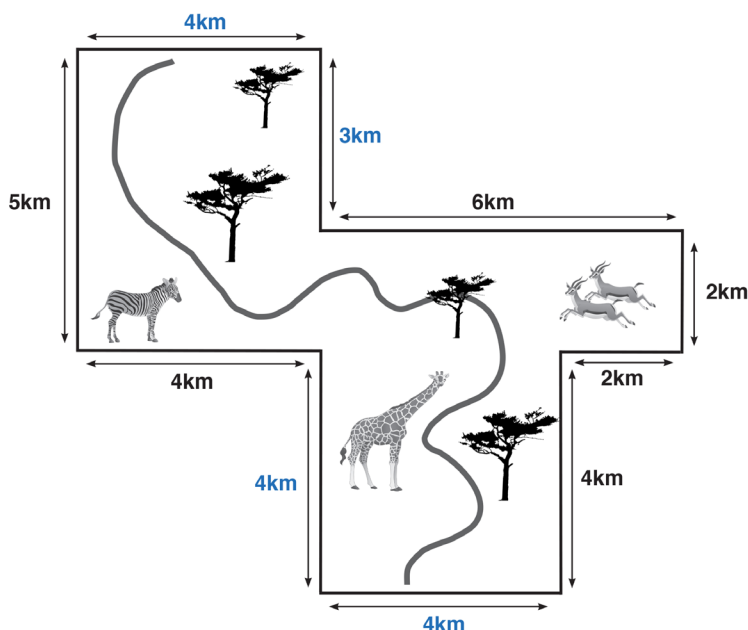


**How to work it out:**

**Perimeter=** 5km + 4km + 3km + 6km + 2km + 2km + 4km + 4km + 4km + 4km = **38km**

**What would the total area of Pablo's territory be?**

**Area:** Area is the amount of space within a 2D shape. To find the area of a square or rectangle you must multiply the length by width. The answer will always be 'squared'. Remember to include the ² symbol in your answers.



As the territory is a composite shape (one large shape made up from multiple smaller shapes), your child will need to split it into separate squares and rectangles, as we have done in this example. It doesn't matter how you split up the larger shape, the answer will still be the same. Find the area of each of these shapes. Then add up the areas of all the shapes to find the total area of the territory.

**How to work it out:**
4km X 3km = 12km²
2km X 10km = 20km²
4km X 4km = 16 km²

**Total area = 12km² + 20km² + 16 km² = 48km²**

**How much bigger would Pablo's territory in the wild be compared to his circus trailer?**

To work this out, the units of measurement you are using must be the same, otherwise you won't reach the correct answer. The area of the leopard's territory has been measured in km² but the trailer has been measured in m². Therefore one set of these units must be converted. We have chosen to change km² to m².

There are 1000m in 1km. To convert kilometres to meters, you must multiple the number of km by 1000.

**48 X 1,000 = 48,000**   Therefore the leopard territory is equivalent to **48,000m²**

**How to work it out:**

Now you have converted the units, you need to work out how many circus trailers would fit into a wild leopard's territory. To do this use division – divide the size of the larger territory by the size of the circus trailer, which you worked out earlier.

We have used the 'bus stop' method. Think about how many times the number outside the 'bus stop' would divide into the numbers in the 'bus stop', starting with the number on the left, which is four.

- Four divides into four once, so place a 1 over the bus stop above the 4.
- Then move onto the next number. Four divides into eight twice, so place a 2 above the bus stop.
- Move onto the next number. Zero divided by four is zero, so simply place a 0 above the bus stop.
- Continue the process until you have divided the whole number, like the example below.

$$4 \overline{\smash{)}48{,}000} = 12{,}000$$

48,000 ÷ 4 = **12,000 times bigger**

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