

LENGTH

A STANDARD UNITS OF LENGTH

A.1 CHOOSING LENGTH UNITS

MCQ 1: Which unit will be used to measure how long a pencil is?

Choose 1 answer:

- ☒ Centimeters
☐ Meters
☐ Kilometers

Answer: Centimeters will be used to measure how long a pencil is.

MCQ 2: Which unit will be used to measure the distance between two cities?

Choose 1 answer:

- ☐ Millimeters
☐ Centimeters
☐ Meters
☒ Kilometers

Answer: Kilometers will be used to measure the distance between two cities.

MCQ 3: Which unit will be used to measure how tall a tree is?

Choose 1 answer:

- ☐ Millimeters
☐ Centimeters
☒ Meters
☐ Kilometers

Answer: Meters will be used to measure how tall a tree is.

MCQ 4: Which unit will be used to measure the length of an ant?

Choose 1 answer:

- ☒ Millimeters
☐ Centimeters
☐ Meters
☐ Kilometers

Answer: Millimeters will be used to measure the length of an ant.

MCQ 5: Which unit will be used to measure how long a book is?

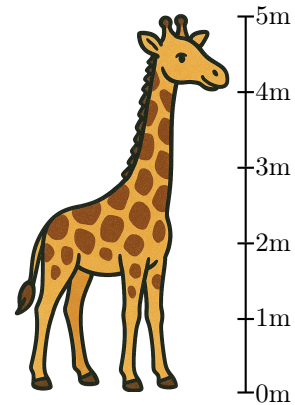
Choose 1 answer:

- ☐ Millimeters
☒ Centimeters
☐ Meters
☐ Kilometers

Answer: Centimeters will be used to measure how long a book is.

A.2 MEASURING

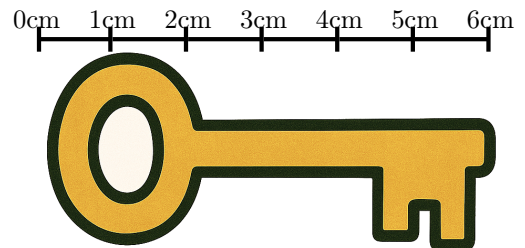
Ex 6:



The giraffe measures **meters** tall.

Answer: The giraffe measures 5 meters tall.

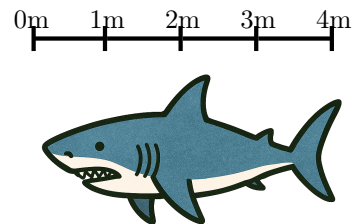
Ex 7:



The key measures **centimeters** long.

Answer: The key measures 6 centimeters long.

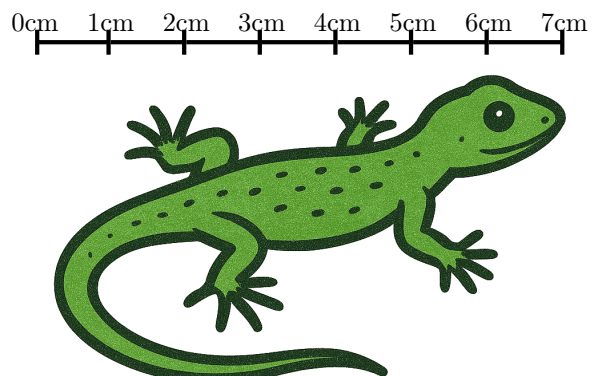
Ex 8:



The shark measures **meters** long.

Answer: The shark measures 4 meters long.

Ex 9:



The lizard measures 7 centimeters long.

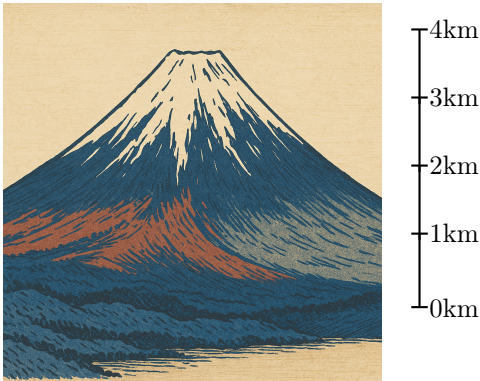
Answer: The lizard measures 7 centimeters long.

Ex 10:

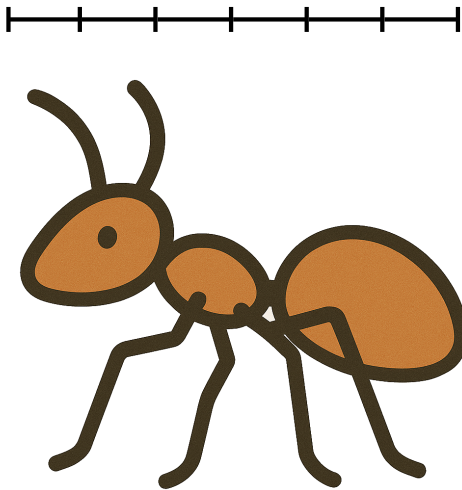


Mount Fuji measures 4 kilometers tall.

Answer: Mount Fuji measures 4 kilometers tall.

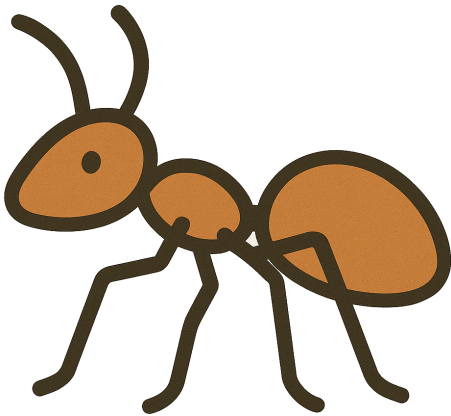
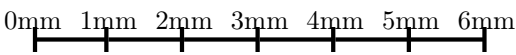


Ex 11:



The ant measures 6 millimeters long.

Answer: The ant measures 6 millimeters long.



B CONVERSION OF LENGTH UNITS

B.1 CONVERTING UNITS OF LENGTH

Ex 12: Convert:

2 km = 2000 m.

Answer:

- *Multiplication Method:*

2 km = $2 \times 1\,000\text{ m}$
= 2 000 m

- *Conversion Table Method:*

km			m		cm	mm
2	0	0	0			

So,

2 km = 2 000m

Ex 13: Convert:

4 m = 400 cm.

Answer:

- *Multiplication Method:*

4 m = $4 \times 100\text{ cm}$
= 400 cm

- *Conversion Table Method:*

km			m		cm	mm
			4	0	0	

So,

4 m = 400 cm

Ex 14: Convert:

300 cm = 3 m.

Answer:



- *Division Method:*

$$300 \text{ cm} = 300 \div 100 \text{ m} \\ = 3 \text{ m}$$

- *Conversion Table Method:*

km			m		cm	mm
			3	0	0	

So,

$$300 \text{ cm} = 3 \text{ m}$$

Ex 15: Convert:

$$4\,000 \text{ m} = \boxed{4} \text{ km.}$$

Answer:

- *Division Method:*

$$4\,000 \text{ m} = 4\,000 \div 1\,000 \text{ km} \\ = 4 \text{ km}$$

- *Conversion Table Method:*

km			m		cm	mm
4	0	0	0			

So,

$$4\,000 \text{ m} = 4 \text{ km}$$

Ex 16: Convert:

$$23 \text{ cm} = \boxed{230} \text{ mm.}$$

Answer:

- *Multiplication Method:*

$$23 \text{ cm} = 23 \times 10 \text{ mm} \\ = 230 \text{ mm}$$

- *Conversion Table Method:*

km			m		cm	mm
				2	3	0

So,

$$23 \text{ cm} = 230 \text{ mm}$$

Ex 17: Convert:

$$6\,000 \text{ mm} = \boxed{6} \text{ m.}$$

Answer:

- *Division Method:*

$$6\,000 \text{ mm} = 6\,000 \div 1\,000 \text{ m} \\ = 6 \text{ m}$$

- *Conversion Table Method:*

km			m		cm	mm
			6	0	0	0

So,

$$6\,000 \text{ mm} = 6 \text{ m}$$

B.2 CONVERTING UNITS OF LENGTH WITH DECIMAL NUMBERS

Ex 18: Convert:

$$2.3 \text{ km} = \boxed{2300} \text{ m.}$$

Answer:

- *Multiplication Method:*

$$2.3 \text{ km} = 2.3 \times 1\,000 \text{ m} \\ = 2\,300 \text{ m}$$

- *Conversion Table Method:*

km			m		cm	mm
2	3	0	0.			

So,

$$2.3 \text{ km} = 2\,300 \text{ m.}$$

Ex 19: Convert:

$$1.60 \text{ m} = \boxed{160} \text{ cm.}$$

Answer:

- *Multiplication Method:*

$$1.60 \text{ m} = 1.60 \times 100 \text{ cm} \\ = 160 \text{ cm}$$

- *Conversion Table Method:*

km			m		cm	mm
			1	6	0.	

So,

$$1.60 \text{ m} = 160 \text{ cm.}$$

Ex 20: Convert:

$$22.5 \text{ cm} = \boxed{225} \text{ mm.}$$

Answer:

- *Multiplication Method:*

$$22.5 \text{ cm} = 22.5 \times 10 \text{ mm} \\ = 225 \text{ mm}$$

- *Conversion Table Method:*

km			m		cm	mm
				2	2	5.

So,

$$22.5 \text{ cm} = 225 \text{ mm.}$$

Ex 21: Convert:

$$185 \text{ cm} = \boxed{1.85} \text{ m.}$$

Answer:

- *Division Method:*

$$185 \text{ cm} = 185 \div 100 \text{ m} \\ = 1.85 \text{ m}$$

- *Conversion Table Method:*

km			m		cm	mm
			1.	8	5	

So,

$$185 \text{ cm} = 1.85 \text{ m}.$$

Ex 22: Convert:

$$2\,300 \text{ m} = \boxed{2.3} \text{ km}.$$

Answer:

- *Division Method:*

$$2\,300 \text{ m} = 2\,300 \div 1\,000 \text{ km} \\ = 2.3 \text{ km}$$

- *Conversion Table Method:*

km			m		cm	mm
2.	3	0	0			

So,

$$2\,300 \text{ m} = 2.3 \text{ km}.$$

Ex 23: Convert:

$$42.2 \text{ km} = \boxed{42\,200} \text{ m}.$$

Answer:

- *Multiplication Method:*

$$42.2 \text{ km} = 42.2 \times 1\,000 \text{ m} \\ = 42\,200 \text{ m}$$

- *Conversion Table Method:*

	km			m		cm	mm
4	2	2	0	0.			

So,

$$42.2 \text{ km} = 42\,200 \text{ m}.$$

B.3 SOLVING PROBLEMS WITH UNIT CONVERSIONS

MCQ 24: Hugo and Louis go walking. Louis walks 5 000 meters, and Hugo walks 4.2 kilometers. Who did the longest walk?

- ☒ Louis
☐ Hugo

Answer: To compare their distances, we need to use the same unit. We can convert either to meters or to kilometers. Let's look at both options.

Option 1: Convert to meters (Louis's unit)

Hugo walks 4.2 km. Using the conversion table:

km			m		cm	mm
4	2	0	0	0.		

So, 4.2 km = 4 200 m.

Now, compare:

- Louis: 5 000 m
- Hugo: 4 200 m

Option 2: Convert to kilometers (Hugo's unit)

Louis walks 5 000 m. Using the conversion table:

km			m		cm	mm
5.	0	0	0			

So, 5 000 m = 5.0 km.

Now, compare:

- Louis: 5.0 km
- Hugo: 4.2 km

In both cases, since 5 000 m (or 5.0 km) is more than 4 200 m (or 4.2 km), **Louis** did the longest walk.

Why choose kilometers? For large distances, like walks between places, using kilometers often gives smaller numbers that are easier to compare.

MCQ 25: A giraffe is 5.1 meters tall, and a horse is 200 centimeters tall. Which animal is taller?

- ☒ Giraffe
☐ Horse

Answer: Let's convert the horse's height to meters to compare with the giraffe.

The horse is 200 cm tall. Using the conversion table:

km			m		cm	mm
			2	0	0	

So, 200 cm = 2 m.

Now, compare:

- Giraffe: 5.1 m
- Horse: 2 m

Since 5.1 m is more than 2 m, the **giraffe** is taller.

MCQ 26: A snake is 3.8 meters long, and a crocodile is 400 centimeters long. Which animal is longer?

- ☐ Snake
☒ Crocodile

Answer: Let's convert the crocodile's length to meters to compare with the snake.

The crocodile is 400 cm long. Using the conversion table:

km			m		cm	mm
			4	0	0	

So, 400 cm = 4 m.

Now, compare:

- Snake: 3.8 m
- Crocodile: 4 m

Since 4 m is more than 3.8 m, the **crocodile** is longer.

MCQ 27: Emma walks 2.7 km to school, and Liam walks 3 000 meters to school. Who walks farther?

- ☐ Emma
- ☒ Liam

Answer: Let’s convert Liam’s distance to kilometers to compare with Emma, since kilometers are more convenient for these distances.

Liam walks 3 000 m. Using the conversion table:

km			m		cm	mm
3	0	0	0			

So, 3 000 m = 3 km.

Now, compare:

- Emma: 2.7 km
- Liam: 3 km

Since 3 km is more than 2.7 km, **Liam** walks farther.

