

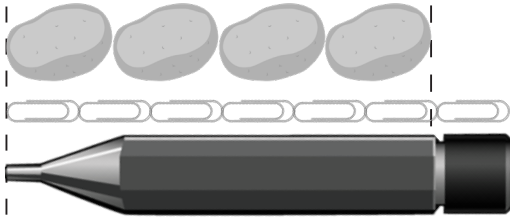


4 - 1

Units of Length

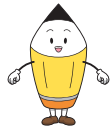
Centimetre (l)

Example Measure the length of the pencil using a  and a .




4  rocks long and some extra


7 clips long

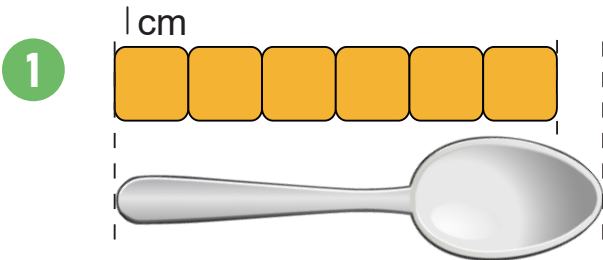


The length of a rock and a clip are different. It is difficult to find out the actual length of the pencil.

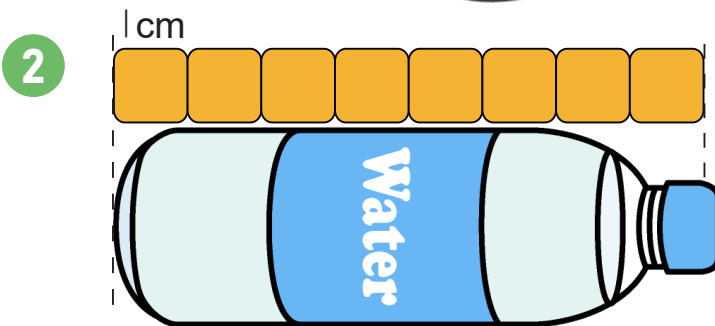
A **centimetre** is the standard unit used to measure the length. It is written as **cm**. 



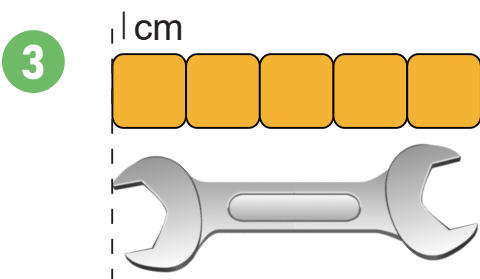
1 Measure the length of the following items using  with 1 cm side.



cm and some extra



cm and some extra



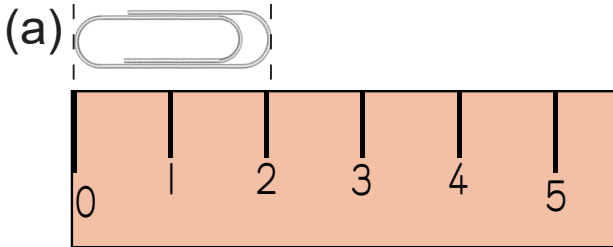
cm

4 - 2

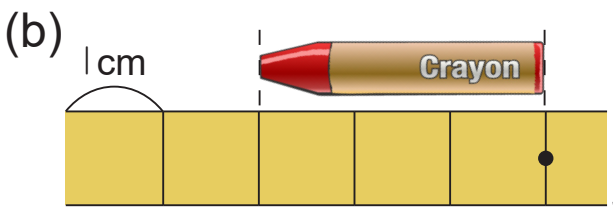
Units of Length

Centimetre (2)

Example How many cm long are the items below?



2 cm

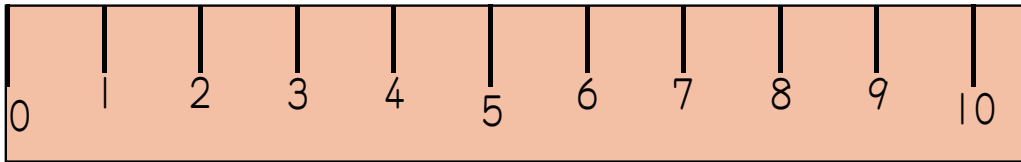


3 cm

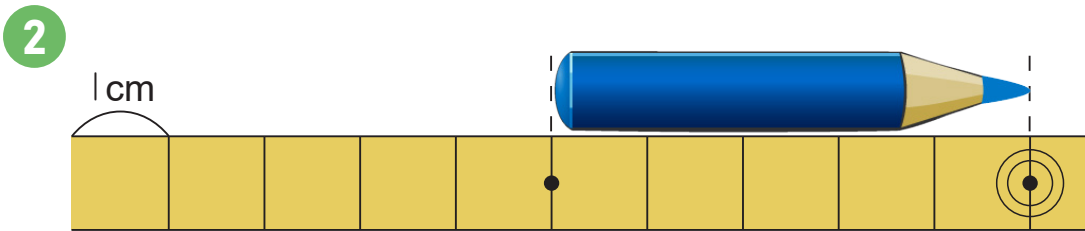


A ruler is a device to measure length and draw a straight line.

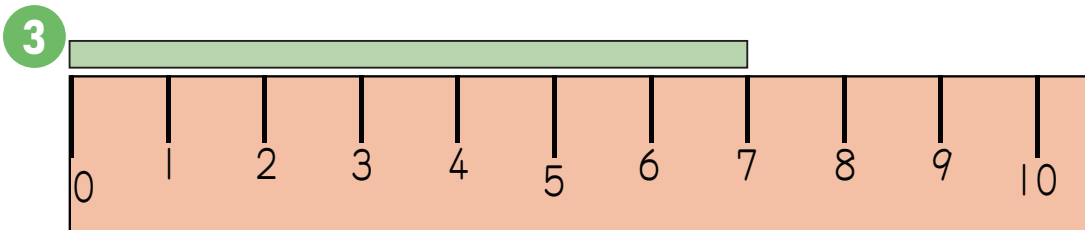
1 How many cm long are the items below?



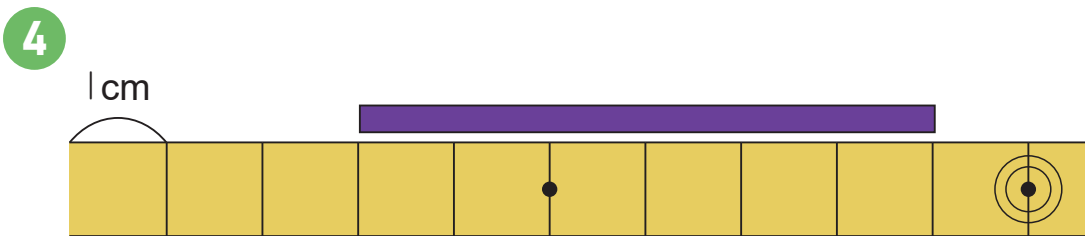
cm



cm



cm



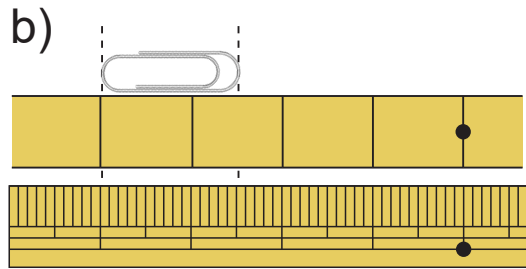
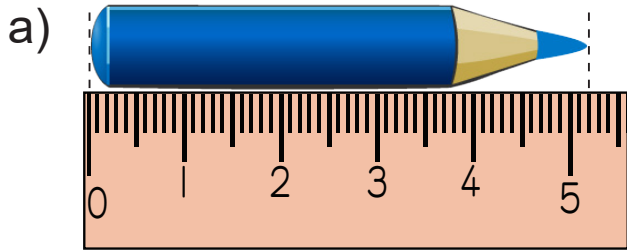
cm

4 - 3

Units of Length

Millimetre

Example How long is the length of the objects?

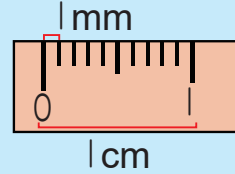


a) cm mm

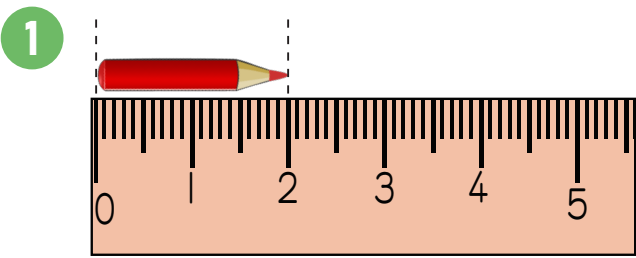
b) cm mm

Divide one cm into 10 equal parts. Each part is called a **millimetre**.

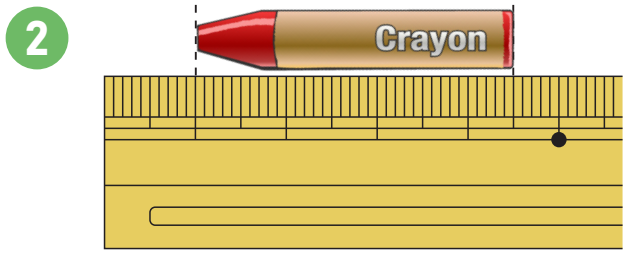
- 1 millimeter can be written as 1 **mm**.
- 1 cm equals 10 mm.



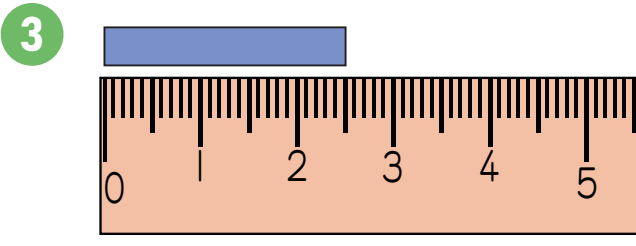
1 How long is the length of the objects?



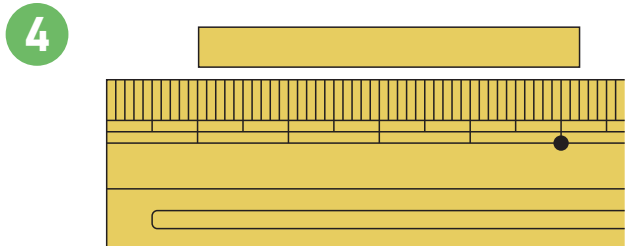
cm



cm mm



cm mm



cm mm

4 - 4

Units of Length

Drawing Straight Lines

Instruction How to draw a straight line using a ruler.

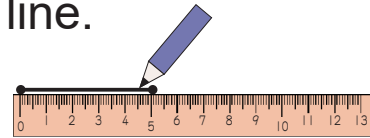
1. Draw a dot as a starting point.



2. Place the zero of the ruler at the starting point.

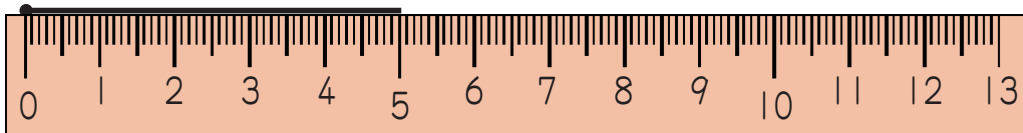


3. Draw another dot and connect the dots with a line.

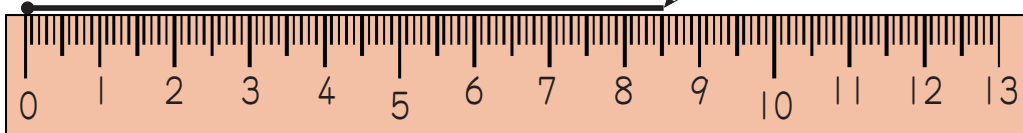


Example Draw the following lengths as straight lines from the points by using a ruler.

1 5 cm



2 8 cm 5 mm



Draw the following lengths as straight lines from the points by using a ruler.

1 6 cm •

2 3 cm 5 mm •

3 7 cm 3 mm •

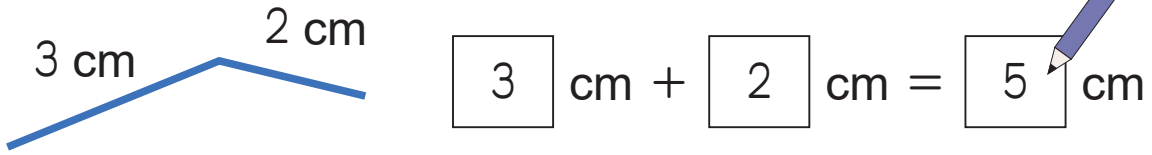
4 4 cm 9 mm •

4 - 5

Units of Length

Addition of Lengths

Example 1 How long are the line by using a ruler?



Example 2 Calculate the following.

(a) 2 cm + 4 cm

$$\boxed{6} \text{ cm}$$

(b) 3 cm 4 mm + 5 cm 5 mm

$$\boxed{8} \text{ cm } \boxed{9} \text{ mm}$$



Calculate the centimeters and the millimeters separately.

1 How long are line (a) and line (b) by using a ruler?

(a)

$$\boxed{} \text{ cm} + \boxed{} \text{ cm } \boxed{} \text{ mm} = \boxed{} \text{ cm } \boxed{} \text{ mm}$$

(b)

$$\boxed{} \text{ cm } \boxed{} \text{ mm} + \boxed{} \text{ cm } \boxed{} \text{ mm} = \boxed{} \text{ cm } \boxed{} \text{ mm}$$

2 Calculate the following.

1 4 cm + 6 cm = $\boxed{}$ cm **2** 5 cm + 7 cm = $\boxed{}$ cm

3 3 cm 6 mm + 2 cm = $\boxed{}$ cm $\boxed{}$ mm

4 6 cm 5 mm + 8 cm = $\boxed{}$ cm $\boxed{}$ mm


5 5 mm + 2 cm 3 cm = $\boxed{}$ cm $\boxed{}$ mm


4 - 6

Units of Length

Subtraction of Lengths

Example 1 What is the difference in length between line (a) and line (b).

(a)  $\frac{\text{length of (b)}}{5 \text{ cm } 5 \text{ mm}} - \frac{\text{length of (a)}}{5 \text{ cm}} = \boxed{5} \text{ mm}$

(b) 

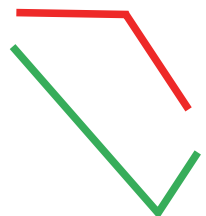
We can subtract the shorter one from the longer one.

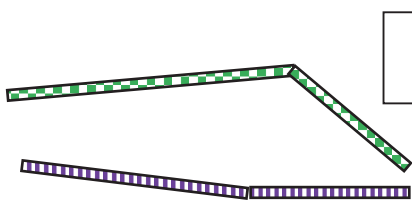


Example 2 Calculate the following.

$5 \text{ cm } 8 \text{ mm} - 2 \text{ cm } 3 \text{ mm} = \boxed{3} \text{ cm } \boxed{5} \text{ mm}$

1 What is the difference in length between the following lines?

(a)  $\boxed{} \text{ cm} - \boxed{} \text{ cm} = \boxed{} \text{ cm}$

(b)  $\boxed{} \text{ cm } \boxed{} \text{ mm} - \boxed{} \text{ cm } \boxed{} \text{ mm} = \boxed{} \text{ mm}$

2 Calculate the following.

1 $7 \text{ cm} - 3 \text{ cm} = \boxed{} \text{ cm}$ **2** $13 \text{ cm} - 4 \text{ cm} = \boxed{} \text{ cm}$

3 $8 \text{ cm } 5 \text{ mm} - 2 \text{ cm} = \boxed{} \text{ cm } \boxed{} \text{ mm}$

4 $12 \text{ cm } 2 \text{ mm} - 8 \text{ cm} = \boxed{} \text{ cm } \boxed{} \text{ mm}$

5 $3 \text{ cm } 6 \text{ mm} - 5 \text{ mm} = \boxed{} \text{ cm } \boxed{} \text{ mm}$

4 - 7

Units of Length

Converting Units of Lengths

Example 1 Convert the lengths to mm.

(a) $3 \text{ cm} = \boxed{30} \text{ mm}$ (b) $1 \text{ cm } 2 \text{ mm} = \boxed{12} \text{ mm}$



$1 \text{ cm} = 10 \text{ mm}.$

Example 2 Convert the lengths to cm / cm and mm

(a) $20 \text{ mm} = \boxed{2} \text{ cm}$ (b) $32 \text{ mm} = \boxed{3} \text{ cm } \boxed{2} \text{ mm}$

1 Convert the lengths to mm.

① $5 \text{ cm} = \boxed{} \text{ mm}$

② $7 \text{ cm} = \boxed{} \text{ mm}$

③ $4 \text{ cm} = \boxed{} \text{ mm}$

④ $12 \text{ cm} = \boxed{} \text{ mm}$

⑤ $1 \text{ cm } 6 \text{ mm} = \boxed{} \text{ mm}$

⑥ $2 \text{ cm } 5 \text{ mm} = \boxed{} \text{ mm}$

⑦ $6 \text{ cm } 7 \text{ mm} = \boxed{} \text{ mm}$

⑧ $10 \text{ cm } 3 \text{ mm} = \boxed{} \text{ mm}$

2 Convert the lengths to cm or cm and mm.

① $60 \text{ mm} = \boxed{} \text{ cm}$

② $80 \text{ mm} = \boxed{} \text{ cm}$

③ $90 \text{ mm} = \boxed{} \text{ cm}$

④ $100 \text{ mm} = \boxed{} \text{ cm}$

⑤ $15 \text{ mm} = \boxed{} \text{ cm } \boxed{} \text{ mm}$

⑥ $54 \text{ mm} = \boxed{} \text{ cm } \boxed{} \text{ mm}$

⑦ $107 \text{ mm} = \boxed{} \text{ cm } \boxed{} \text{ mm}$

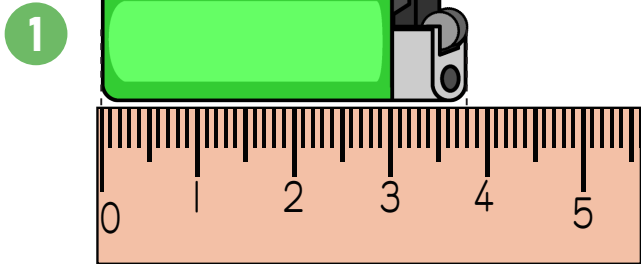
⑧ $131 \text{ mm} = \boxed{} \text{ cm } \boxed{} \text{ mm}$

4 - 8

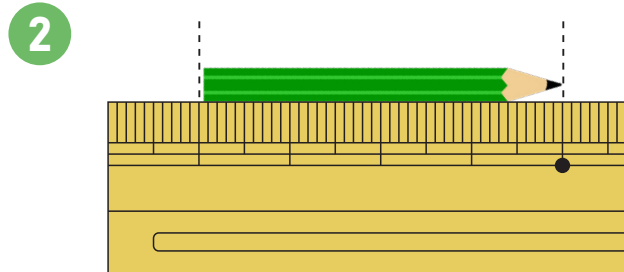
Units of Length

Review

1 How long is the length of the objects?



cm mm



cm

2 Draw the following lengths as straight lines from the points by using a ruler.

1 7 cm •

2 10 cm 2 mm •

3 Calculate the following.

1 $5 \text{ cm} + 10 \text{ cm} = \text{ } \text{cm}$ 2 $13 \text{ cm} - 7 \text{ cm} = \text{ } \text{cm}$

3 $3 \text{ cm } 2 \text{ mm} + 4 \text{ cm } 1 \text{ mm} = \text{ } \text{cm } \text{ } \text{mm}$

4 $9 \text{ cm } 5 \text{ mm} - 5 \text{ cm } 3 \text{ mm} = \text{ } \text{cm } \text{ } \text{mm}$

4 Convert the lengths to mm, cm, or cm and mm.

1 $20 \text{ mm} = \text{ } \text{cm}$ 2 $10 \text{ cm} = \text{ } \text{mm}$

3 $190 \text{ mm} = \text{ } \text{cm}$ 4 $13 \text{ cm} = \text{ } \text{cm } \text{ } \text{mm}$

5 $2 \text{ cm } 5 \text{ mm} = \text{ } \text{mm}$ 6 $118 \text{ mm} = \text{ } \text{cm } \text{ } \text{mm}$