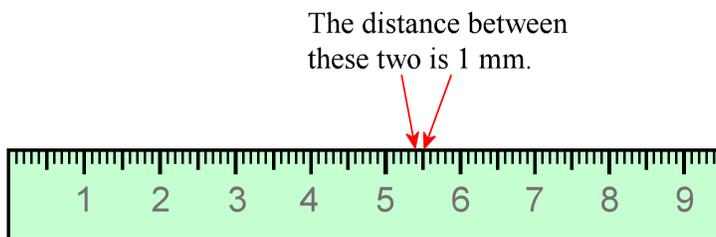


Centimeters and Millimeters

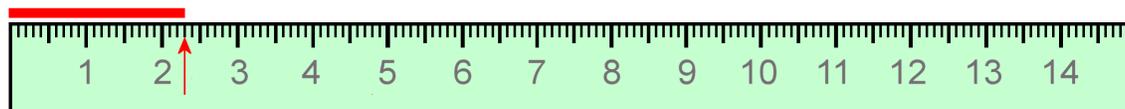
This ruler measures in centimeters. The numbers signify whole centimeters. All the shorter lines between those are for *millimeters*.

The distance from one short line to the next line is *1 millimeter*. We write 1 mm. Millimeters are very tiny!



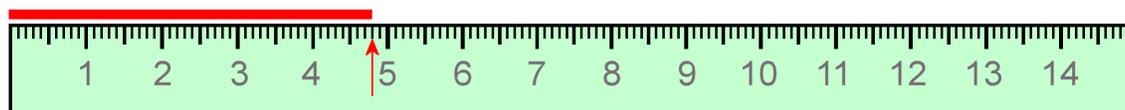
Look at the ruler: **there are 10 millimeters in each centimeter.**

Measuring lines: First see how many whole centimeters long the line is. Then count how many little millimeter-lines beyond that it reaches.



This line is 2 cm 3 mm long. At the same time, it is 23 mm long. Why?

Each centimeter is 10 mm, so 2 cm is 20 mm. That means 2 cm 3 mm makes 23 mm in total.



This line is 4 cm 8 mm long. At the same time, it is 48 mm long.

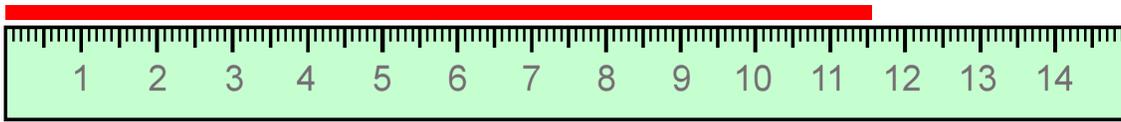
1. Measure the lines using the ruler, first in whole centimeters and millimeters. Then write their lengths using millimeters only.

a. _____ cm _____ mm = _____ mm

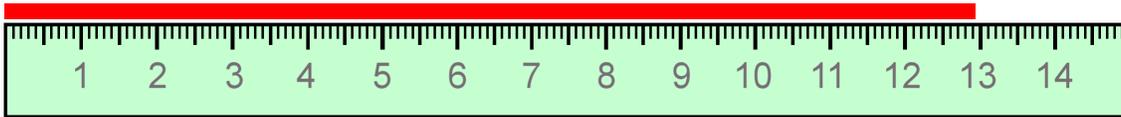


b. _____ cm _____ mm = _____ mm

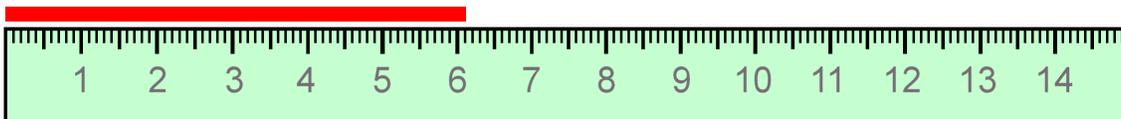




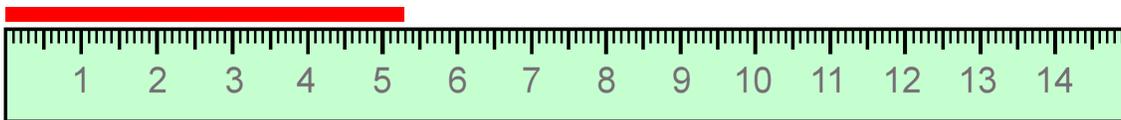
c. _____ cm _____ mm = _____ mm



d. _____ cm _____ mm = _____ mm



e. _____ cm _____ mm = _____ mm



f. _____ cm _____ mm = _____ mm

2. Draw lines using a ruler.

a. 7 cm 8 mm

b. 10 cm 5 mm

c. 14 mm

d. 55 mm

e. 126 mm

3. Measure items you can find at home, using a centimeter-millimeter ruler.
If the item is not exactly as long as the markers on the ruler, choose the nearest mark.

Item	Length

4. Change between centimeters and millimeters.

a.	b.	c.
1 cm = _____ mm	1 cm 1 mm = <u>11</u> mm	4 cm 5 mm = _____ mm
2 cm = _____ mm	1 cm 2 mm = _____ mm	2 cm 5 mm = _____ mm
5 cm = _____ mm	1 cm 8 mm = _____ mm	7 cm 8 mm = _____ mm
8 cm = _____ mm	2 cm 3 mm = _____ mm	10 cm 4 mm = _____ mm

5. Change between millimeters and centimeters.

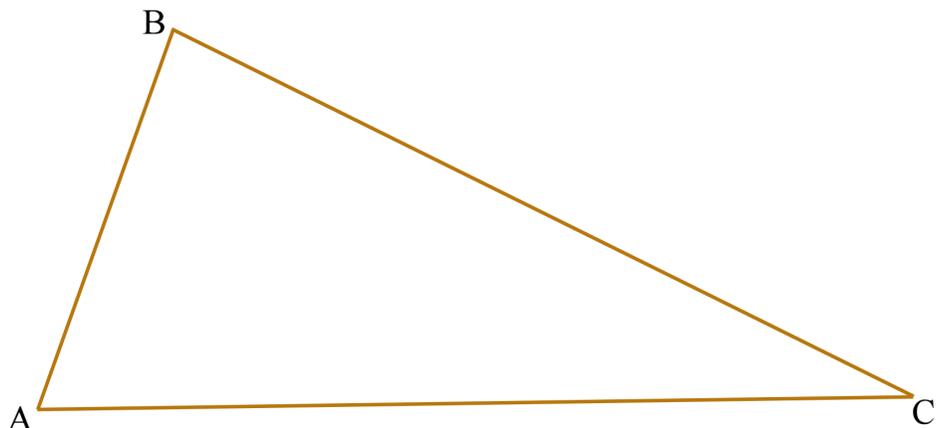
a.	b.	c.
70 mm = _____ cm	12 mm = ____ cm ____ mm	89 mm = ____ cm ____ mm
100 mm = _____ cm	45 mm = ____ cm ____ mm	102 mm = ____ cm ____ mm

6. Measure the sides of this triangle in millimeters.

Side AB _____ mm

Side BC _____ mm

Side CA _____ mm



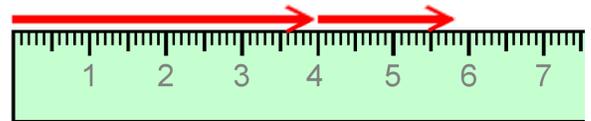
7. Find the perimeter of the triangle in the previous exercise.

8. Draw the third side of this triangle.
Then measure its sides.
Lastly, find its perimeter in millimeters.



The first arrow is 4 cm. The second arrow is 1 cm 8 mm. How long are they together?
Add, giving your answer in millimeters.

$$4 \text{ cm} + 1 \text{ cm } 8 \text{ mm} = 5 \text{ cm } 8 \text{ mm} = 58 \text{ mm}$$



Add centimeters with centimeters, and millimeters with millimeters.
Remember that 10 millimeters makes 1 centimeter.

$$9 \text{ mm} + 6 \text{ cm} + 2 \text{ mm} = 6 \text{ cm } 11 \text{ mm} = 7 \text{ cm } 1 \text{ mm} = 71 \text{ mm}$$

If you have both millimeters and centimeters, change the centimeters to millimeters first:

$$84 \text{ mm} + \underline{3 \text{ cm}} + 9 \text{ mm} = 84 \text{ mm} + \underline{30 \text{ mm}} + 9 \text{ mm} = 123 \text{ mm} \text{ (which is also } 12 \text{ cm } 3 \text{ mm)}$$

9. Work out these “line additions.” Give your answers in millimeters.

a. 1 cm 5 mm + 5 mm	b. 28 mm + 7 cm
c. 5 mm + 5 cm 8 mm	d. 2 cm 4 mm + 4 cm 5 mm
e. 52 mm + 2 cm 4 mm	f. 6 cm + 8 mm + 17 mm
g. 9 mm + 17 mm + 2 cm	h. 139 mm + 50 cm + 2 mm