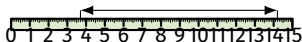


Start Tasks – Answers



The object does not start at zero. Read to the nearest millimetre and give the length in centimetres.

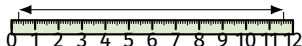
1.



Solution

$$14.2 - 3.7 = 10.5 \text{ cm} = 105 \text{ mm}$$

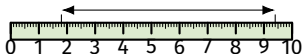
2.



Solution

$$11.6 - 0.3 = 11.3 \text{ cm} = 113 \text{ mm}$$

3.



Solution

$$9.4 - 1.8 = 7.6 \text{ cm} = 76 \text{ mm}$$

4.



Solution

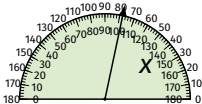
$$14.9 - 5.5 = 9.4 \text{ cm} = 94 \text{ mm}$$

Start Tasks – Answers



Read each marked angle from the stated zero line, using the matching scale.

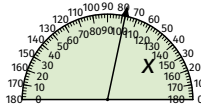
5.



Solution

Outer scale (from the right): $x = 78^\circ$

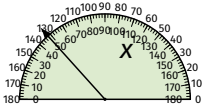
6.



Solution

Inner scale: $x = 180^\circ - 78^\circ = 102^\circ$

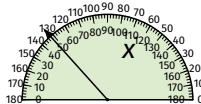
7.



Solution

Outer scale (from the right): $x = 132^\circ$

8.



Solution

Inner scale: $x = 180^\circ - 132^\circ = 48^\circ$

Start Tasks – Answers



Explain your reasoning, or read the diagram carefully – the ruler length is not the reading.

9. A ray on a protractor reads 62° on the outer scale. What does the same ray read on the inner scale? Explain why the two readings always add to 180° .

Solution

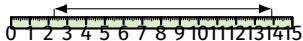
Inner reading = $180^\circ - 62^\circ = 118^\circ$. The scales run opposite ways from one straight baseline, so the readings always sum to 180° .

10. A ruler is marked only in whole centimetres, with no millimetre sub-ticks. Explain why a length of 6.4 cm cannot be read precisely from it.

Solution

With only whole-cm marks, 6.4 cm falls between the 6 cm and 7 cm ticks, so it can only be estimated, not read precisely.

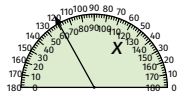
11.



Solution

$$13.9 - 2.3 = 11.6 \approx 12 \text{ cm}$$

12.



Solution

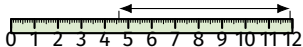
Outer scale: $x = 119^\circ$ (obtuse)

Start Tasks – Answers



Read carefully – some readings need converting or rounding.

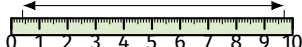
13.



Solution

$$11.9 - 4.6 = 7.3 \text{ cm} = 73 \text{ mm}$$

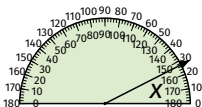
14.



Solution

$$9.7 - 0.4 = 9.3 \approx 9 \text{ cm}$$

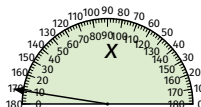
15.



Solution

Outer scale: $x = 27^\circ$ (acute)

16.



Solution

Outer: $x = 171^\circ$; 9° short of 180°