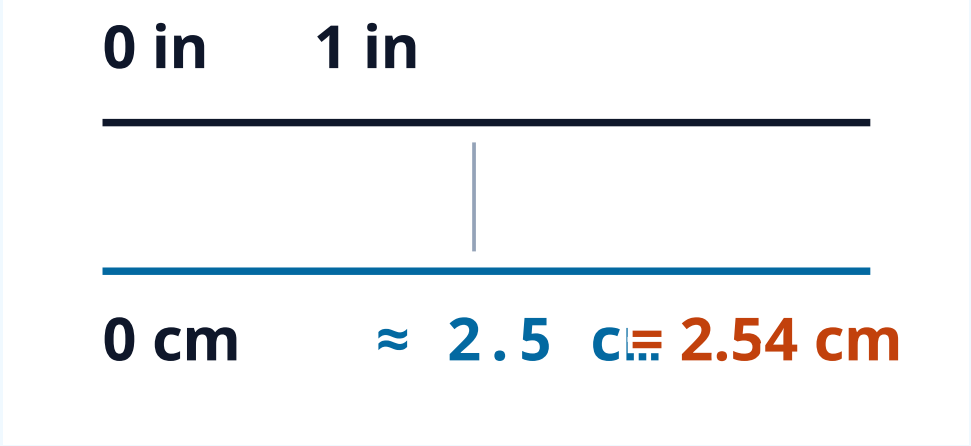
Mathematics 10-3

Unit M: Measurement in SI and imperial

SI and imperial conversion

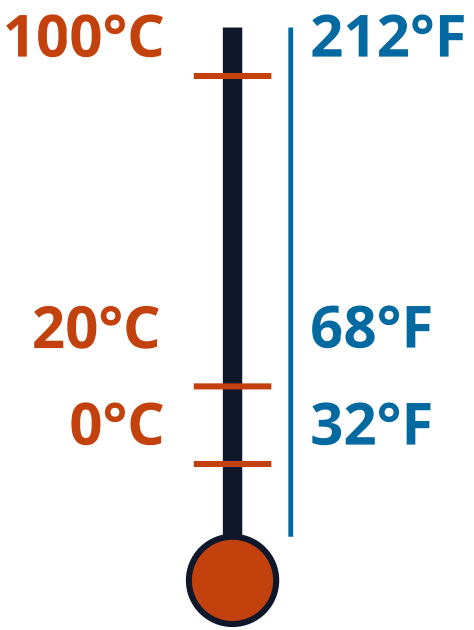
SI and imperial in daily use

- A cabinet drawing labels a stile in inches while the shop rule asks for centimetres, and a prep kitchen log records degrees Celsius.
- Every inch on that drawing uses the same centimetre rate.
- Every Celsius reading on the log uses the same Fahrenheit rule.



Rates that stay proportional

- One inch is approximately 2.5 centimetres as a referent, and a drawing that asks for the trade factor uses 1 inch equals 2.54 centimetres.
- F stands for degrees Fahrenheit and C stands for degrees Celsius.
- The formulas are F = (9/5)C + 32 and C = (5/9) times (F minus 32).
- One litre is approximately one quarter of a US gallon, so 8 litres is about 2 US gallons.



Key terms

centimetre

A hundredth of a metre. Trade drawings in this course use 2.54 centimetres for one inch. (cm)

Celsius

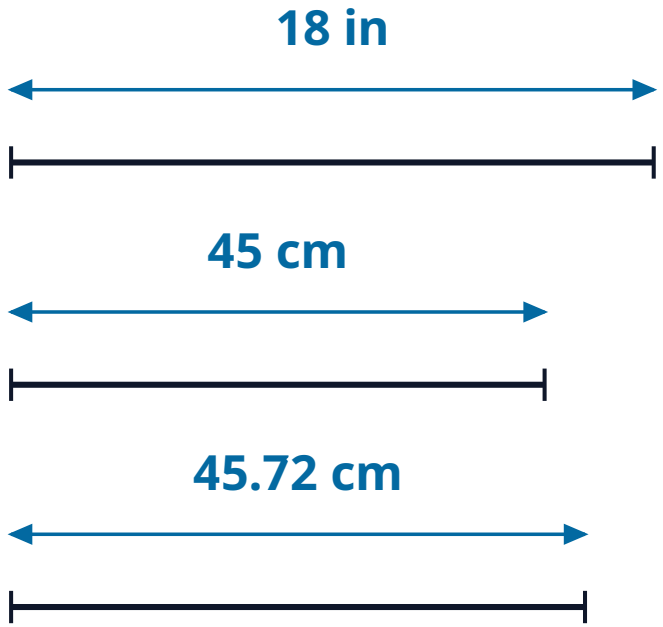
The job-sheet temperature scale. The letter C stands for degrees Celsius. (C)

Fahrenheit

The imperial temperature scale. The letter F stands for degrees Fahrenheit. (F)

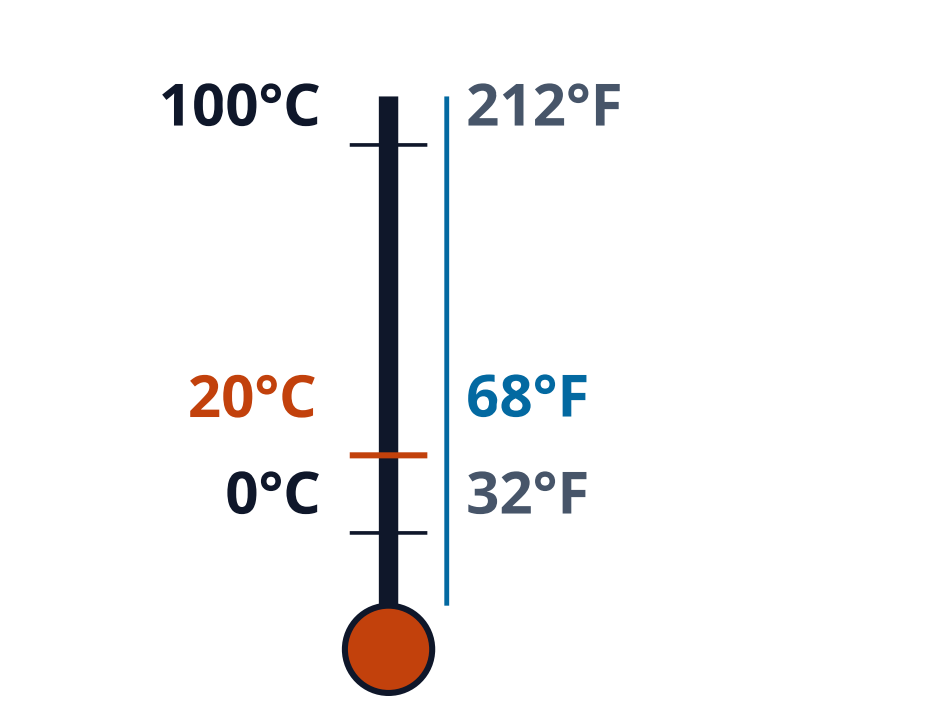
Estimates and exact conversions

- Eighteen inches times 2.5 gives the estimate 45 centimetres.
- Eighteen inches times 2.54 gives the trade length 45.72 centimetres.
- Four inches estimate to 10 centimetres and trade to 10.16 centimetres.
- Twelve inches estimate to 30 centimetres and trade to 30.48 centimetres.



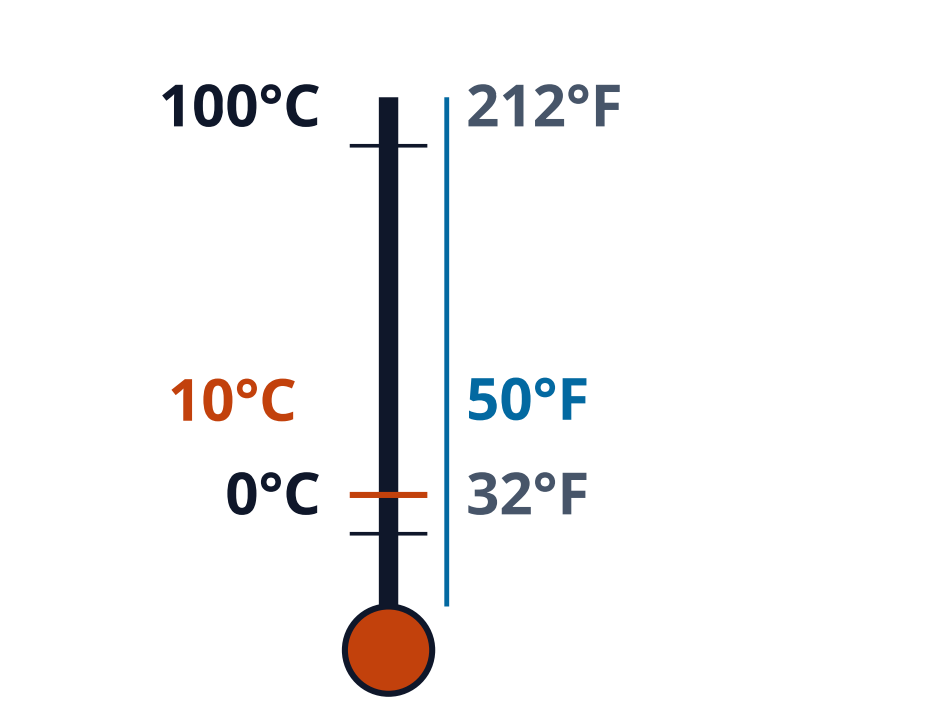
Twenty degrees Celsius to Fahrenheit

- The letter C stands for degrees Celsius and the letter F stands for degrees Fahrenheit.
- Multiply the Celsius reading by 9/5 first.
- That 20 times 9/5 equals 36.
- Then add 32.
- That 36 plus 32 equals 68, so 20 degrees Celsius equals 68 degrees Fahrenheit.



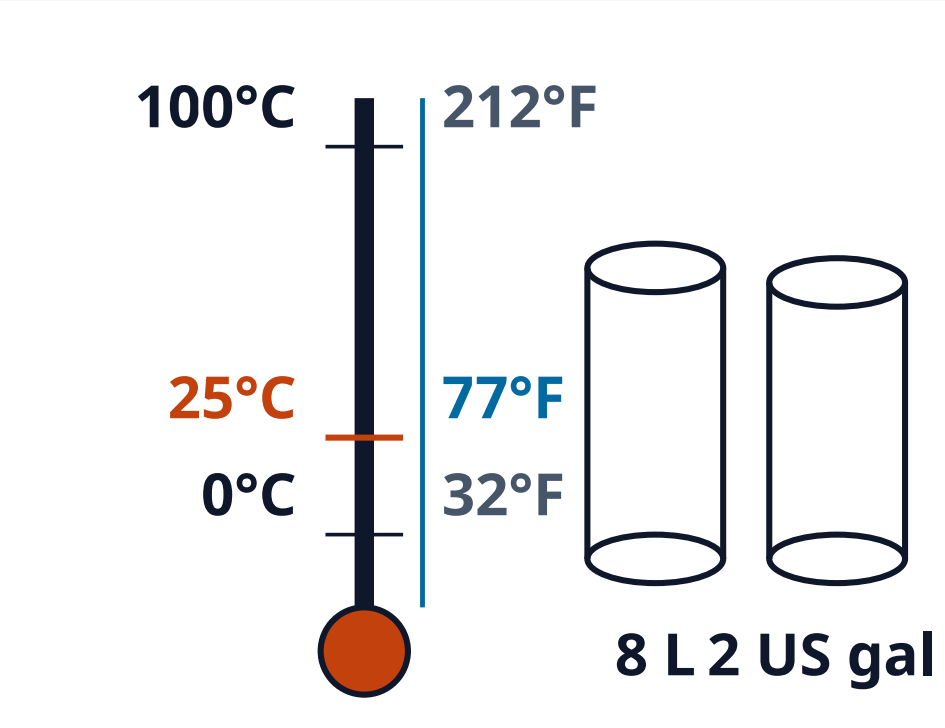
A cooler at 50 degrees Fahrenheit

- The reverse formula is C = (5/9) times (F minus 32).
- Subtract 32 from 50 first.
- That 50 minus 32 equals 18.
- Then multiply by 5/9.
- That 18 times 5/9 equals 10, so 50 degrees Fahrenheit equals 10 degrees Celsius.



Seventy-seven Fahrenheit and a jug of stock

- A dial at 77 degrees Fahrenheit converts by subtracting 32 from 77 to leave 45, then multiplying 45 by 5/9 to reach 25 degrees Celsius.
- Eight litres is about 2 US gallons because 1 litre is approximately 1/4 US gallon and 8 times 1/4 equals 2.
- The estimate 2.5 centimetres per inch stays a picture.
- The printed factor 2.54 is the machining rate.



Rate check before the cut

- Give both the estimate and the trade centimetre length for 18 inches.
- Convert 20 degrees Celsius to Fahrenheit and show the multiply step before the add.

