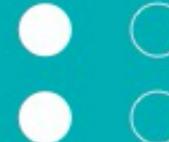


ncfe.

functional skills.

L2.14_M

Conversion between metric and imperial units of capacity



Aims and outcomes

By the end of this session learners **must** be able to:

- understand and use relationships between metric units of capacity.

Learners **should** be able to:

- use the relationships between imperial units of capacity.

Learners **could also aim to:**

- convert between metric and imperial units of capacity.

Learners will be assessed on their ability to

- understand metric and imperial units for capacity and conversion between them.



Metric units

We will start with revising metric units of capacity before moving on to conversions between metric and imperial measures.

In metric units, litres (l) are the key measure and we have smaller units, centiliters (cl) and millilitres (ml). They are related by:

1 centilitre = 10 millilitres

1 litre = 100 centilitres

and

1 litre = 1000 millilitres



Metric units conversions

1 centilitre = 10 millilitres

1 litre = 100 centilitres

and

1 litre = 1000 millilitres

Example: What is 27 ml in cl?

Solution: $27 \text{ ml} = 2.7 \text{ cl}$ (divide by 10)

Example: What is 350 cl in litres?

Solution: $350 \text{ cl} = 3.50 \text{ litres}$ (divide by 100)

Example: What is 450 ml in litres?

Solution: $450 \text{ ml} = 0.45 \text{ litres}$ (divide by 1000)

Example: What is 2.5 litres in cl?

Solution: $2.5 \text{ litres} = 250 \text{ cl}$ (multiply by 100)

Example: What is 2.5 cl in ml?

Solution: $2.5 \text{ cl} = 25 \text{ ml}$ (multiply by 10)

Conversion of metric units: activity

Complete this table of entries by adding in the missing values in each row.

Millilitres (ml)	Centilitres (cl)	Litres (l)
450	45	0.45
3250	325	3.25
855	85.5	0.855
3275	327.5	3.275



Imperial units

The **imperial units** for capacity are gallons, pints and fluid ounces
They are related by:

1 gallon = 8 pints

1 pint = 20 fluid ounces

and

1 gallon = 160 fluid ounces



Imperial units with conversions

1 gallon = 8 pints

1 pint = 20 fluid ounces

Example: Convert 2.5 pints to fluid ounces

Solution: To convert pints to fluid ounces, we multiply by 20 to give
 $2.5 \times 20 = 50$ fluid ounces.

Example: Convert 36 pints to gallons

Solution: To convert pints to gallons, we divide by 8 to give:
 $36 \div 8 = 4.5$ gallons

Example: Convert 3.24 gallons to pints

Solution: To convert gallons to pints, we multiply by 8 to give:
 $3.24 \times 8 = 25.92$ pints

Example: Convert 68 fluid ounces to pints

Solution: To convert fluid ounces to pints, we divide by 20 to give:
 $68 \div 20 = 3.4$ pints

Imperial units with conversions: activities

Complete this table of capacities by adding in the missing values in each row.

Fluid ounces	pints	gallons
380	19	2.375
400	20	2.5
1920	96	12
5280	264	33

Conversion between metric and imperial units

We can now convert between metric and imperial units using these approximations

Imperial to Metric	Metric to Imperial
$1 \text{ ml} \approx 0.0352 \text{ fluid ounces}$	$1 \text{ fluid ounce} \approx 28.41 \text{ ml}$
$1 \text{ cl} \approx 0.352 \text{ fluid ounces}$	$1 \text{ fluid ounce} \approx 2.841 \text{ cl}$
$1 \text{ litre} \approx 1.76 \text{ pints}$	$1 \text{ pint} \approx 0.568 \text{ litres}$
$1 \text{ litre} \approx 0.220 \text{ gallons}$	$1 \text{ gallon} \approx 4.546 \text{ litres}$

Conversion between metric and imperial units

Imperial to Metric	Metric to Imperial
1 ml \approx 0.0352 fluid ounces	1 fluid ounce \approx 28.41 ml
1 cl \approx 0.352 fluid ounces	1 fluid ounce \approx 2.841 cl
1 litre \approx 1.76 pints	1 pint \approx 0.568 litres
1 litre \approx 0.220 gallons	1 gallon \approx 4.546 litres

Example: Convert 37 cl to fluid ounces.

Solution: 1 cl is approximately 0.352 fluid ounces so:

$$37 \text{ cl} \approx 37 \times 0.352 \text{ fluid ounces} = 13.024 \text{ fluid ounces}$$

Example: Convert 12 litres to pints.

Solution: 1 litre is approximately 1.76 pints so:

$$12 \text{ litres} \approx 12 \times 1.76 \text{ pints} = 21.12 \text{ pints}$$

Example: Convert 3.5 gallons to litres.

Solution: 1 gallon is approximately 4.546 litres so:

$$3.5 \text{ gallons} \approx 3.5 \times 4.546 \text{ litres} = 15.911 \text{ litres}$$

Conversion between metric and imperial units: activity

Imperial to Metric	Metric to Imperial
1 ml \approx 0.0352 fluid ounces	1 fluid ounce \approx 28.41 ml
1 cl \approx 0.352 fluid ounces	1 fluid ounce \approx 2.841 cl
1 litre \approx 1.76 pints	1 pint \approx 0.568 litres
1 litre \approx 0.220 gallons	1 gallon \approx 4.546 litres

Complete these conversion tables, using the approximations above.

cl	fluid ounces
480	168.96
340.92	120
250	88

litres	pints
24	42.24
22.72	40
150	264

Aims and outcomes

By the end of this session learners **must** be able to:

- understand and use relationships between metric units of capacity.

Learners **should** be able to:

- use the relationships between imperial units of capacity.

Learners **could also aim to**:

- convert between metric and imperial units of capacity.

Learners will be assessed on their ability to

- understand metric and imperial units for capacity and conversion between them.

Don't forget to
complete your
Knowledge Check

Congratulations!

You've completed this module on '**Conversion between metric and imperial units of capacity**'.

Now practise your skills with the Activities and test your progress with our Knowledge Check.