

Metric & Imperial Units

Weight

1 Kilogram (kg)	=	2.2 lbs (pounds)
16 ounces (oz)	=	1 pound (lb)
14 pounds (lbs)	=	1 stone (st)

Pounds (lb) and Ounces (oz)

Example

A baby's birth weight is 3.4kg. Change the weight into pounds and ounces.

$$1\text{kg} = 2.2\text{lbs}$$

$$3.4\text{kg} = 3.4 \times 2.2\text{lbs} = 7.48\text{lbs} \quad \text{which is 7lbs and 0.48lb}$$

$$0.48\text{lbs} = 0.48 \times 16\text{oz} = 7.68\text{ozs} \quad \text{which rounds to 8oz}$$

The baby weighed 7lbs 8oz

Exercise 1

Change the following weights from **kilograms** to **pounds and ounces**.

1) 3.9 kg

2) 4.1 kg

3) 2.7 kg

4) 5.5 kg

Stones (st) and Pounds (lb)

Example

A patient weighs 8 stone 6 pounds. What is this weight in kilograms?

$$1 \text{ st} = 14 \text{ lbs}$$

$$8 \text{ st} = 8 \times 14 \text{ lbs} = 112 \text{ lbs}$$

$$8 \text{ st } 6 \text{ lbs} = 112 + 6 \text{ lbs} = 118 \text{ lbs}$$

$$1 \text{ kg} = 2.2 \text{ lbs}$$

$$118 \text{ lbs} = 118 \div 2.2 = 53.6 \text{ kg}$$

The patient weighed 53.6 kg

Exercise 2

Change the following weights from **stones and pounds** to **kilograms**.

1) 11 st

2) 9 st 6 lb

3) 12 st 4 lb

4) 10 st 8 lb

Height

$$1 \text{ inch (in)} = 2.54 \text{ centimetres (cm)}$$

$$12 \text{ inches} = 1 \text{ foot (ft)}$$

$$100 \text{ cm} = 1 \text{ metre (m)}$$

Example

A patient is 5 ft 8 ins tall. What is this height in **metres**?

$$5 \text{ feet} = 5 \times 12 \text{ ins} = 60 \text{ ins}$$

$$5 \text{ ft } 8 \text{ ins} = 60 + 8 \text{ ins} = 68 \text{ ins}$$

$$5 \text{ft } 8 \text{ins} = 2.54 \times 68 = 172.72 \text{ cm}$$

$$172.72 \text{cm} = 172.72 \div 100 = 1.7272 \text{ m} = 1.73 \text{m to 2dp}$$

The patient is 1.73m tall

Exercise 3

Change the following heights from **feet and inches** to **metres**.

1) 6 ft 4 ins

2) 5 ft 5 ins

3) 4 ft 6 ins

4) 3 ft 10 ins

Temperature

To convert Centigrade (Celsius) to Fahrenheit, the formula is:

$$F = \frac{9}{5}C + 32$$

Example

Convert 34.5°C to Fahrenheit.

The fraction $\frac{9}{5}$ means multiply by 9 and divide by 5

$$34.5 \times 9 = 310.5$$

$$310.5 \div 5 = 62.1$$

Now add 32

$$62.1 + 32 = 94.1$$

The temperature is 94.1°F

You might find it easier to divide by 5 first then multiply by 9:

$$34.5 \div 5 = 6.9$$

$$6.9 \times 9 = 62.1$$

$$62.1 + 32 = 94.1 \quad (\text{same answer as before})$$

Exercise 4

Change the following temperatures to **Fahrenheit**.

1) 21.5 °C

2) 37.5 °C

3) 40.2 °C

4) 24.3 °C

Temperature

To convert Fahrenheit to Centigrade (Celsius), the formula is:

$$C = \frac{5}{9}(F - 32)$$

Example

Convert 86 °F to Celsius.

Brackets first, so subtract 32

$$86 - 32 = 54$$

The fraction $\frac{5}{9}$ means multiply by 5 and divide by 9

$$54 \times 5 = 270$$

$$270 \div 9 = 30 \text{ (to 1 dp)}$$

The temperature is 30 °C

You might find it easier to divide by 9 first then multiply by 5:

$$89 - 32 = 54$$

$$54 \div 9 = 6$$

$$6 \times 5 = 30 \text{ (same answer as before)}$$

Exercise 5

Change the following temperatures to **Celsius**.

1) 75 °F

2) 53 °F

3) 115 °F

4) 93 °F

Answers

Exercise 1

- | | |
|---------------|---------------|
| 1) 8 lb 9 oz | 2) 9 lb |
| 3) 5 lb 15 oz | 4) 12 lb 2 oz |

Exercise 2

- | | |
|------------|------------|
| 1) 70 kg | 2) 60 kg |
| 3) 78.2 kg | 4) 67.3 kg |

Exercise 3

- | | |
|-----------|-----------|
| 1) 1.93 m | 2) 1.65 m |
| 3) 1.37 m | 4) 1.17 m |

Exercise 4

- | | |
|-------------|------------|
| 1) 70.7°F | 2) 99.5°F |
| 3) 104.36°F | 4) 75.74°F |

Exercise 5

- | | |
|-----------|-----------|
| 1) 23.9°C | 2) 11.7°C |
| 3) 46.1°C | 4) 33.9°C |