1. The formula k = 1.6m converts miles (m) into kilometres (k). Use the formula to convert:
   a. 20 miles to km
   b. 30 miles to km
   c. 112km to miles.

2. The formula F = 1.8C + 32 converts Celsius (C) into Fahrenheit (F). Use the formula to convert:
   a. 0C to F
   b. 10C to F
   c. 5C to F
   d. -40C to F
   e. 158F to C.

3. Explain how we know that the surface area of this cuboid is:

   s = 2ab + 2bc + 2ac

   Use the formula to calculate the surface area of a cuboid where:
   a. a = 2cm, b = 3cm, c = 4cm
   b. a = 6cm, b = 2.5cm, c = 2cm
   c. a = ½cm, b = 6cm, c = 3cm.
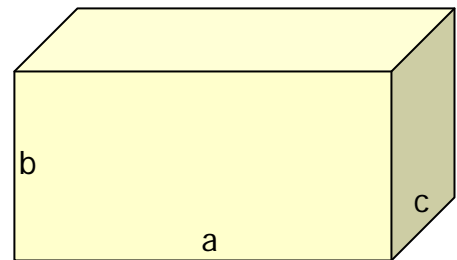
Extension

The formula to find the velocity (speed) of an object is given by:

   v = u + at

where:

   v = velocity
   u = original velocity
   a = acceleration
   t = time.

1. Find the velocity of a car where:
   a. u = 12, a = 3, t = 6
   b. u = 5, a = ¼, t = 20
   c. u = 7, a = ¾, t = 24.

2. A car is travelling at 30m/s. The driver wishes to overtake a lorry, so accelerates at 5m/s2 for 5 seconds. What is the new velocity of the car?

A maths joke

The formula to find the volume of a cylinder is:

   $V = \pi r^2 h$

What is the volume of this pizza?

Answers

1.
   a. F = 32°F
   b. F = 1.8 x 10 + 32 = 50°F
   c. F = 1.8 x 5 + 32 = 41°F
   d. F = 1.8 x -40 + 32 = -40°F
   e. 158 = 1.8C + 32   C = 70°F

2.
   a. k = 1.6 x 20 = 32km
   b. k = 1.6 x 30 = 48km
   c. 112 = 1.6m   m = 70 miles

3.
   Front face = a x b   Back face = front face = a x b
   Left face = b x c   Right face = left face = b x c
   Top face = a x c   Bottom face = top face = a x c
   Total surface area = 2ab + 2bc + 2ac

   a. s = 2(2 x 3) + 2(3 x 4) + 2(2 x 4) = 52cm^2
   b. s = 2(6 x 2.5) + 2(2.5 x 2) + 2(6 x 2) = 64cm^2
   c. s = 2(½ x 6) + 2(6 x 3) + 2 (½ x 3) = 48cm^2

Extension

1.
   a. v = 12 + 3 x 6 = 30m/s
   b. v = 5 + ¼ x 20 = 10m/s
   c. v = 7 + ¾ x 24 = 25m/s

2.
   v = 30 + 5 x 5 = 55m/s

A maths joke

V = $\pi z^2 a$ = pi*z*z*a