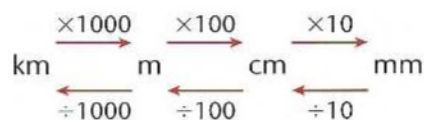
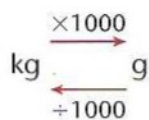


**TARGET** To convert between standard units of length, mass and capacity.

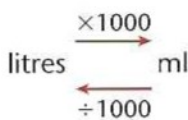
## UNITS OF LENGTH



## UNITS OF MASS



## UNITS OF CAPACITY



### A

Copy and complete.

- 1 5000 m =  km
- 2 1800 m =  km
- 3 3.5 km =  m
- 4 2.9 km =  m
- 5 640 cm =  m
- 6 25 cm =  m
- 7 0.48 m =  cm
- 8 9.36 m =  cm
- 9 2 mm =  cm
- 10 71 mm =  cm
- 11 54 cm =  mm
- 12 0.8 cm =  mm
- 13 0.6 kg =  g
- 14 3.2 kg =  g
- 15 970 g =  kg
- 16 4050 g =  kg
- 17 1.6 litres =  ml
- 18 8.2 litres =  ml
- 19 300 ml =  litres
- 20 7900 ml =  litres

Change to:

miles

km

- 21 40 km
- 22 72 km
- 23 12 km
- 24 28 km
- 25 2 miles
- 26 30 miles
- 27 100 miles
- 28 11 miles

### B

Copy and complete.

- 1 2168 m =  km
- 2 359 m =  km
- 3 7.708 km =  m
- 4 0.063 km =  m
- 5 29 cm =  m
- 6 580 cm =  m
- 7 0.07 m =  cm
- 8 4.11 m =  cm
- 9 153 mm =  m
- 10 8 mm =  m
- 11 6.49 m =  mm
- 12 0.072 m =  mm
- 13 3.456 kg =  g
- 14 0.002 kg =  g
- 15 179 g =  kg
- 16 3 g =  kg
- 17 0.6 litres =  ml
- 18 8.01 litres =  ml
- 19 2400 ml =  litres
- 20 75 ml =  litres

Change to:

miles

km

- 21 36 km
- 22 50 km
- 23 124 km
- 24 69.2 km
- 25 4.8 miles
- 26 62.5 miles
- 27 8 miles
- 28 250 miles

### C

Copy and complete by putting >, < or = in the box.

- 1 10 cm  0.09 m
- 2 1641 mm  16.41 m
- 3 50 g  0.05 kg
- 4 2288 ml  2.8 litres
- 5 3000 mm  0.003 km
- 6 1440 cm  0.04 km
- 7 25 g  0.025 kg
- 8 38 ml  0.008 litres

Convert to miles

- 9 47 km
- 10 9.4 km
- 11 73 km
- 12 53.8 km

Convert to kilometres.

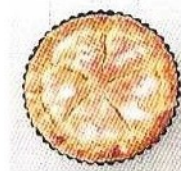
- 13 1562 miles
- 14 284.6 miles
- 15 65.77 miles
- 16 12.29 miles
- 17 Each nail weighs 3.85 g. There are 24 nails in a packet. What is the total weight of the nails in 60 packets in kilograms?
- 18 A lorry travels 263 km in Belgium and 172 miles in England. How much longer in miles is the English journey?



**TARGET** To solve word problems involving measures.*Example*

An apple pie weighs 0.8 kg.  
It is cut into five equal slices.  
Two are eaten. What is the  
weight of the remaining pie?

$$\begin{aligned} 0.8 \text{ kg} &= 800 \text{ g} \\ 800 \div 5 &= 160 \\ 160 \times 3 &= 480 \\ \text{Answer } 480 \text{ g is left.} \end{aligned}$$

**A**

- 1 Stella has a 6 m ball of string. One quarter is cut off. How much does she have left?
- 2 Norris buys three sacks of potatoes, a large one holding 45 kg and two smaller ones holding 27.5 kg each. What is the total weight of the potatoes he has bought?
- 3 The temperature is 3°C. It falls 8°C and then rises 2°C. What is the new temperature?
- 4 A motor mower has 700 ml of petrol. 2.5 litres is added. 0.6 litres is used. How much petrol is in the mower?



- 5 The wall of a room is 4 m long. A radiator 1.6 m long is to be placed exactly in the centre of the wall. How far should it be from each side of the wall to the radiator?

**B**

- 1 A packet of cereal weighs 1.2 kg. 450 g is used. One third of the rest is used. How much is left?
- 2 A water bottle holds 2.6 litres. 1.9 litres is used. 750 ml is added. How much water is in the bottle?
- 3 Ceri buys six 80 cm ribbons and seven 50 cm ribbons. What is the total length of the ribbons bought in metres?
- 4 The temperature at 6 pm is 9.3°C. By midnight it falls to 3.6°C and it falls as much again by 6 am. What is the temperature at 6 am?
- 5 A recipe for eight people requires one kilogram of meat. How much is needed for three people?
- 6 Claire buys a 2 litre bottle of milk. Seven tenths is used. A quarter of what is left is used. How much milk is left?

**C**

- 1 A crate of 24 empty bottles weighs 6.4 kg. The crate weighs 2.8 kg. What does each bottle weigh?
- 2 Three fifths of a bottle of cooking oil is used. 450 ml is left. How much oil does a full bottle hold in litres?
- 3 A machine makes 320 staples from a 10 m length of wire. Each staple uses 15 mm of wire. How much of the wire is left?
- 4 A can of fruit weighs 425 g. There are eight cans in each box. What is the total weight in kilograms of the cans in four boxes?
- 5 Nancy makes 1.2 litres of lemon squash. She pours two fifths into a jug and the rest is shared equally between six glasses. How much squash is in each glass?
- 6 Brian needs 250 lengths of tape, each 60 cm long. Tapes are 30 m long. How many will he need to buy?



**TARGET** To solve word problems involving the calculation and conversion of units of measure.

**Example**

An avenue of trees is 2.16 km long.  
The trees are evenly spaced 15 m apart.  
How many are there on each side of the avenue?

$$2.16 \text{ km} = 2160 \text{ m}$$

$$2160 \div 15 = 144$$

**Answer** *There are 145 trees on each side of the avenue.  
(144 spaces plus the final tree.)*



**A**

- 1 A park has a perimeter of 1700 m. Kylie runs round the park five times. How far has she run altogether in kilometres?
- 2 A cafe has 7.8 litres of soup. It provides 30 equal servings. How much is each serving in millilitres?
- 3 One can of peas weighs 200 g. The cans on the shelves of a shop weigh 7.4 kg altogether. How many cans are on the shelves?
- 4 One gallon is 4.5 litres. What is nine gallons in litres?
- 5 A lawn is 18.4 m wide. A mower cuts strips of grass 80 cm wide. How many times will the mower need to be pushed the length of the lawn in order to cut the grass?
- 6 Each bag of chips weighs 1500 g. What is the total weight of six bags?

**B**

- 1 One bottle of vinegar holds 350 ml. How much vinegar is in eighteen bottles in litres?
- 2 One pound is 1.6 US dollars
  - a) How many dollars is £8.30?
  - b) How many pounds is 72 dollars?
- 3 Each pin is made from 3.4 cm of wire. How much wire is needed for 4000 pins in metres?
- 4 Pots of mustard hold 190 ml. How many pots can be filled from 4.75 litres?
- 5 A patio is 7 m long and 5.46 m wide. What is the area of the patio?
- 6 A small jar of hand cream holds 50 ml. How many jars can be filled from 3.8 litres?



**C**

- 1 A pot of gold fish food holds 13 g. How much food is there in 175 pots in kilograms?
- 2 Each magazine in a stack is 18 mm thick. The stack is 61.2 cm tall. How many magazines are there?
- 3 Bottles of washing up liquid each hold 435 ml. There are 24 bottles in a box. How much washing up liquid is there in a box in litres?
- 4 One kilogram is 2.2 pounds weight (lbs). An American footballer weighs 277.2 lbs. What is this in kilograms?
- 5 The perimeter of a rectangular room is 22 m. The longest side is 6.5 m. What is the area of the room?
- 6 Each can of fruit weighs 350 g. How many cans would have a total weight of 15.4 kg?



## TARGET To describe positions on the full co-ordinate grid.

The position of a point on a grid is given by its  $x$  and  $y$  co-ordinates.

The  $x$  co-ordinate always comes first.

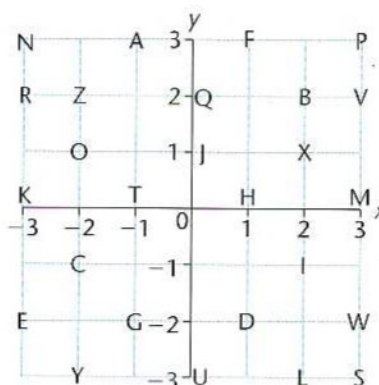
### Examples

Point O is  $(-2, 1)$

Point X is  $(2, 1)$

Point C is  $(-2, -1)$

Point I is  $(2, -1)$



### A



Use the above grid.

Which letter is at:

- |            |             |
|------------|-------------|
| 1 $(3, 4)$ | 5 $(4, 3)$  |
| 2 $(5, 5)$ | 6 $(3, 1)$  |
| 3 $(0, 3)$ | 7 $(2, 2)$  |
| 4 $(1, 1)$ | 8 $(5, 0)?$ |

Give the position of:

- |      |       |
|------|-------|
| 9 G  | 13 V  |
| 10 C | 14 P  |
| 11 O | 15 L  |
| 12 K | 16 Q. |

Use the grid to write:

- 17 your name
- 18 your school
- 19 your favourite colour
- 20 your favourite meal.

### B

Use the above grid.

Which letter is at:

- |              |               |
|--------------|---------------|
| 1 $(3, 2)$   | 5 $(-2, 2)$   |
| 2 $(-3, -2)$ | 6 $(1, -2)$   |
| 3 $(0, 1)$   | 7 $(-1, 0)$   |
| 4 $(2, -3)$  | 8 $(-2, -1)?$ |

Give the position of:

- |      |       |
|------|-------|
| 9 W  | 13 K  |
| 10 Y | 14 P  |
| 11 Q | 15 U  |
| 12 G | 16 C. |

Each set of co-ordinates spells out the name of a European capital city, but one letter has been moved. Find the city.

- |  |              |
|--|--------------|
| 17 $(3, -3)$   | 19 $(-2, 1)$ |
| $(-2, 1)$  | $(3, 0)$     |
| $(2, -3)$  | $(-3, -2)$   |
| $(-2, 1)$  | $(-3, 2)$    |
| 18 $(-1, 0)$   | 20 $(2, -1)$ |
| $(1, 0)$   | $(3, -3)$    |
| $(-3, -2)$   | $(-2, 1)$    |
| $(-3, 3)$  | $(1, 3)$     |
| $(-1, 3)$  | $(-1, 3)$    |
| $(3, -3)$  |              |
| 21 Write in co-ordinates the countries of which these cities are the capitals. |              |

### C

Use the above grid. Find the European capital cities.

- |  |             |
|--|-------------|
| 1 $(2, -3)$  | 3 $(3, -3)$ |
| $(0, 1)$   | $(-3, 0)$   |
| $(0, -3)$  | $(-2, 1)$   |
| $(2, 2)$   | $(3, 3)$    |
| $(2, -3)$  | $(0, 1)$    |
| $(0, 1)$   | $(-3, -2)$  |
| $(-1, 3)$  |             |
| $(-3, 3)$  | 4 $(-3, 2)$ |
| $(-1, 3)$  | $(-3, -2)$  |
|  | $(-2, -3)$  |
| 2 $(3, 2)$   | $(-3, 0)$   |
| $(-1, 3)$  | $(0, 1)$    |
| $(1, -2)$  | $(-1, 3)$   |
| $(0, -3)$  | $(3, 2)$    |
| $(-2, 2)$  | $(2, -1)$   |
|  | $(-3, 0)$   |
| 5 Write in co-ordinates the countries of which these cities are the capitals.  |             |
| 6 A $(-3, 1)$ , B $(1, 3)$ and C $(3, -1)$ are three vertices of square ABCD. Draw a grid like the one above, plot the points and complete the square. |             |
| 7 Find the midpoint of line:   |             |
| a) AB  | c) CD       |
| b) BC  | d) AD       |
| e) BD  | f) AC.      |

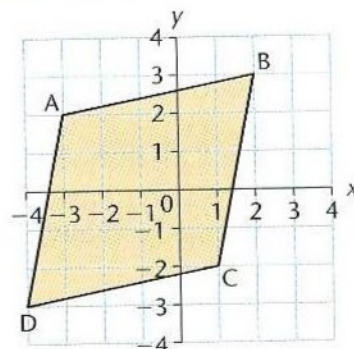


**TARGET** To draw shapes on the full co-ordinate grid.

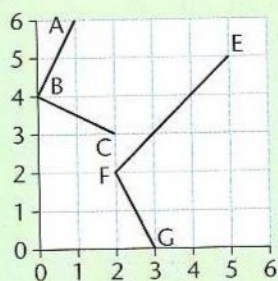
## Examples

Join the following points in the order given to form a rhombus.

- 1 A (-3, 2)
- 2 B (2, 3)
- 3 C (1, -2)
- 4 D (-4, -3)
- 5 A (-3, 2)



## A



- 1 Copy the above grid. Draw and complete:
  - a) square ABCD
  - b) parallelogram EFGH.

Draw a grid like the one above. Plot the points for each shape and join them up in the order given.

- 2 (2, 0)
- 3 (5, 6)
- (0, 2)
- (6, 4)
- (3, 3)
- (5, 2)
- (2, 0)
- (4, 4)
- (5, 6)

Draw a new grid and form the shapes.

- 4 (3, 6)
- 5 (2, 1)
- (4, 4)
- (5, 4)
- (0, 2)
- (6, 3)
- (3, 6)
- (3, 0)
- (2, 1)

- 6 Label each shape.

## B

Draw a grid like the one above. Plot the points for each shape and join them up in the order given. Use a different colour for each shape.

- 1 (-4, 4)
- 2 (4, -2)
- (0, 3)
- (-2, -4)
- (1, -1)
- (-3, -1)
- (-3, 0)
- (3, 1)
- (-4, 4)
- (4, -2)

Draw a new grid and form the shapes.

- 3 A (-4, 1)
- 4 E (-1, 4)
- B (0, 3)
- F (4, 2)
- C (2, -1)
- G (3, -2)
- D (-2, -3)
- H (-2, 0)
- A (-4, 1)
- E (-1, 4)

- 5 Label each shape.

- 6 Write down the mid-point of each line.

- a) AB
- c) CD
- b) BC
- d) AD

- 7 Write down the point where the diagonals intersect in:

- a) shape ABCD
- b) shape EFGH

## C

- 1 Draw a grid with both x and y axes labelled from -6 to 6. Plot the following points:
  - L (-4, -1)
  - M (2, 1)
  - R (0, -2)

- 2 LM is the longest line in an isosceles triangle KLM. Give the co-ordinates of both possible positions of K.

- 3 LMN is an isosceles triangle. Give both possible positions for N if:

- a) LM = MN
- b) LM = LN

- 4 L, M and R are three vertices of a parallelogram LMRQ. Give the co-ordinates of all three possible positions for Q.