Using graphs

- Using a graph to convert one quantity into another
- Using a graph to solve an equation

Keywords

You should know

explanation 1

1 A teacher uses this graph to convert test marks to percentages.

a Use the red lines to help you write a mark of 21 as a percentage.

b Write each of these marks as a percentage.
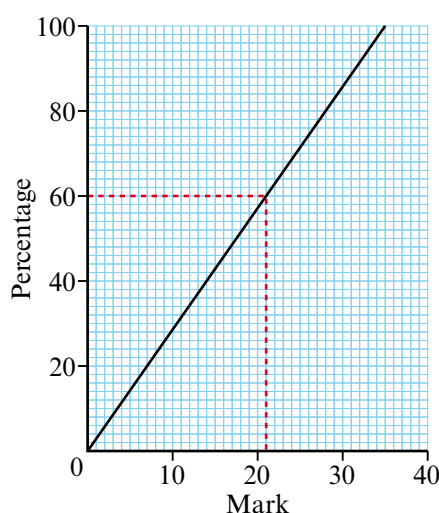
   i 28   **ii** 14   **iii** 25

c What was the highest possible mark?
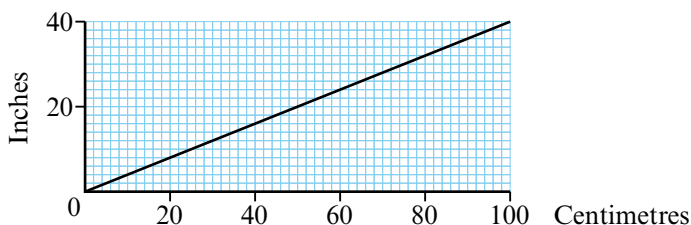
d The lowest percentage scored was 20%.

   How many marks did this pupil score?

e The highest percentage scored was 90%.

   How many marks did this pupil score?

2 You can use this graph to convert between inches (in) and centimetres (cm).

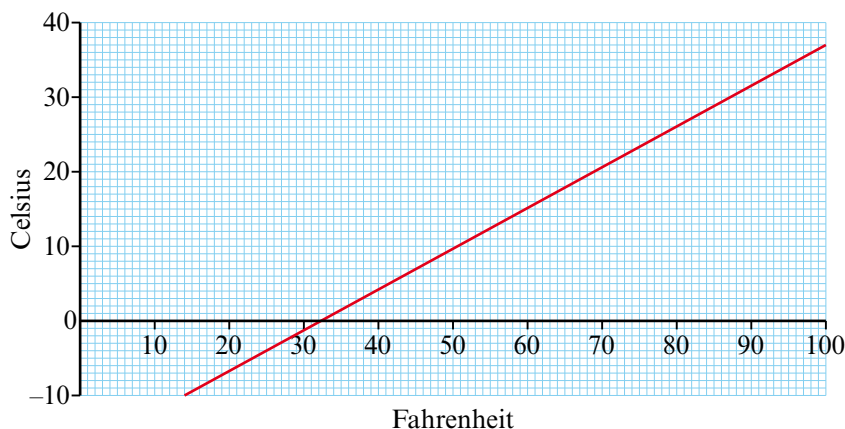a Write these lengths to the nearest inch.

   **i** 20 cm   **ii** 90 cm

   iii 55 cm   **iv** 32 cm

b Write these lengths to the nearest centimetre.

   i 20 in   **ii** 30 in   **iii** 12 in   **iv** 16 in

3 Temperatures can be measured in degrees Celsius (°C) or degrees Fahrenheit (°F). You can use this graph to convert between them.

a It is about 20°C in a classroom. Write this temperature in °F.

b In the summer, the temperature reached 86°F. Write this temperature in °C.

c At 0°C water freezes. What temperature does water freeze at in °F?

d The temperature dropped to −5°C in January. Write this temperature in °F.

e Human body temperature is 98.4°F. Write this in °C to the nearest degree.

**4** 22 lb is approximately 10 kg. This is shown by the red cross on the diagram.
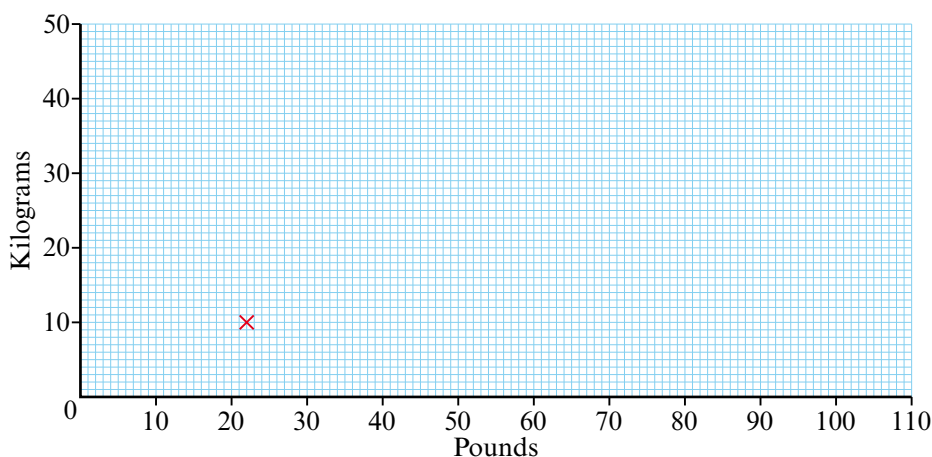
a Approximately how many kilograms is   **i** 44 lb?   **ii** 88 lb?

b Copy the axes and plot your answers to **a**. Draw a line through the points.

c Use your graph to work these out.

   i How many pounds is 15 kg?   **ii** How many pounds is 45 kg?

   iii How many kilograms is 37 lb?   **iv** How many kilograms is 101 lb ?
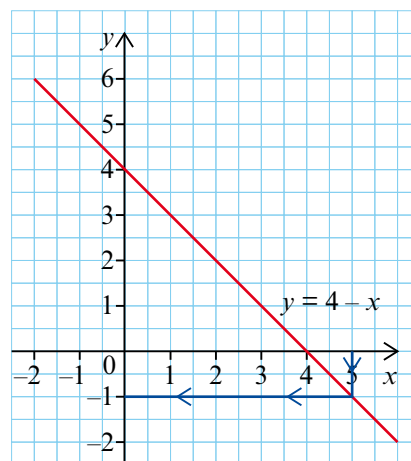
explanation 2

5 The diagram shows the graph of $y = 2x - 3$.

   a Use the blue lines to help you find the value of x when $y = 5$.

   b Use the graph to find values of x when

       i $y = 1$ **ii** $y = 4$

       iii $y = -3$ **iv** $y = -1$
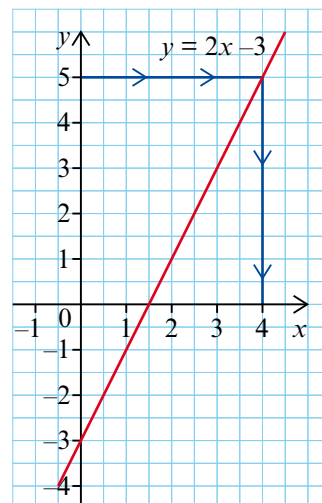
6 The diagram shows the graph of $y = 4 - x$.

   a Use the blue lines to help you find the value of y when $x = 5$.

   b Use the graph to find the value of y when

       i $x = 3$ **ii** $x = 1$

       iii $x = 4$ **iv** $x = -1$

7 The diagram shows the graph of $y = 6 - 2x$.

   a Use the blue lines to help you find the value of x when $y = 1$.

   b Use the graph to find values of x when

       i $y = 4$ **ii** $y = 3$

       iii $y = 0$ **iv** $y = -1$