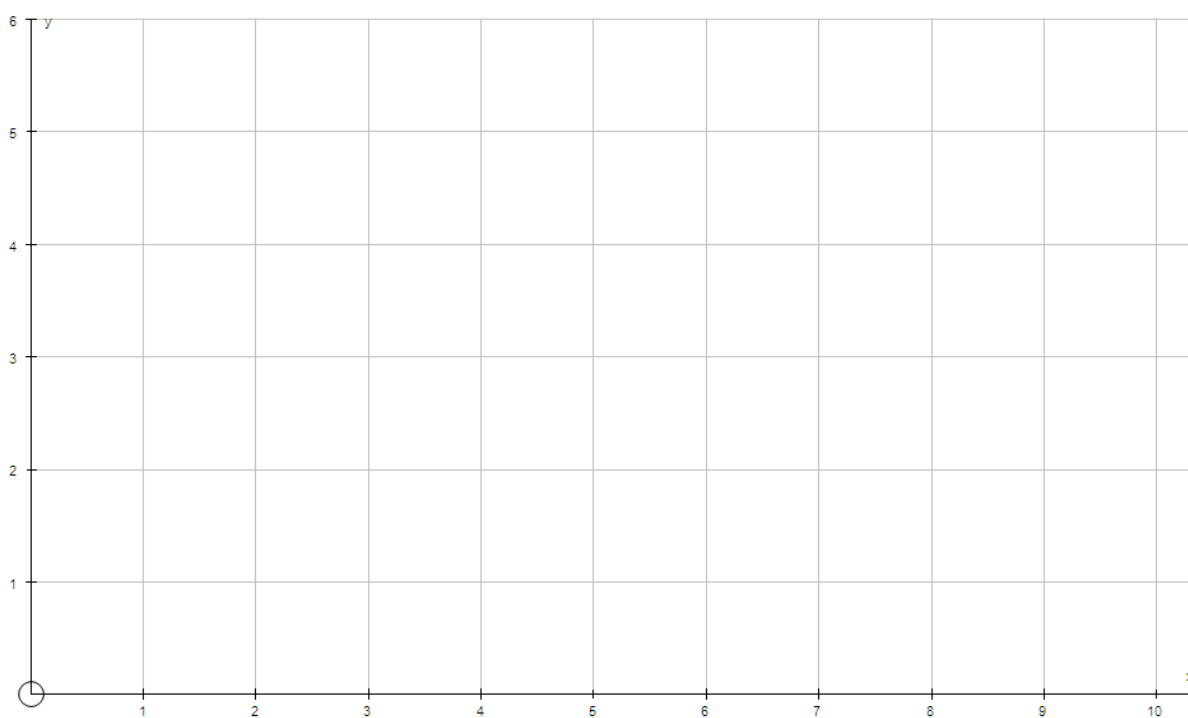


1. a) Complete the table below for the values for the function $y = \frac{2}{x}$.

x	1	2	3	4	5	6	7	8	9	10
y	2	.....	0.67	0.5	.....	0.33	0.29	.....	0.22	0.2

[3]

b) On the grid below draw the graph of $y = \frac{2}{x}$ for $0 < x \leq 10$. [4]



c) Use the graph to solve the equation $\frac{2}{x} = 4$.

Answer $x = \dots\dots\dots$ [1]

- d) Complete the table of values for the function $y = \frac{x}{4} + 2$.

x	0	4	8	10
y	.....	3	.....	4.5

[2]

- e) On the same grid draw the graph of $y = \frac{x}{4} + 2$.

[2]

- f) Write down the gradient of the graph $y = \frac{x}{4} + 2$.

Answer [1]

- g) Write down the x -coordinate of the point of intersection between $y = \frac{x}{4} + 2$ and $y = \frac{2}{x}$.

Answer $x =$ [2]

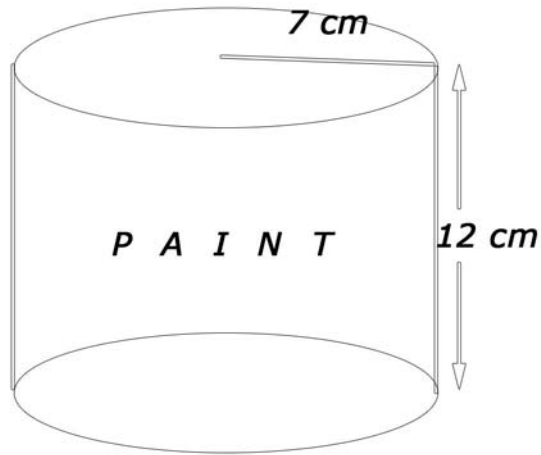
2. Solve the simultaneous equation,

$$5x + 2y = 11$$

$$2x + 6y = 7$$

Answer $x =$ and $y =$ [4]

3. A cylindrical tin of paint is been drawn below.



Not to scale

- a) Calculate the volume of the tin of paint.
 [The volume of a cylinder of radius r and height h is $\pi r^2 h$ and π is approximately 3.142]

Answer cm³ [3]

- b) The paint does not fill the tin. It will leave a gap of 1.5 cm at the top of the tin.
 Calculate the volume of paint in the tin in cm³.

Answer cm³ [3]

- c) Convert your answer from b) into litres.

Answer litres [1]

- d) Ishmael is painting his bedroom and knows it will require 12 litres of paint.

Calculate how many tins of paint he will need to buy to paint his bedroom.

Answer [2]

4. The three calculations below have been done by an IGCSE student. Each calculation has one mistake in it. Circle the first mistake and show the correct working next to each question.

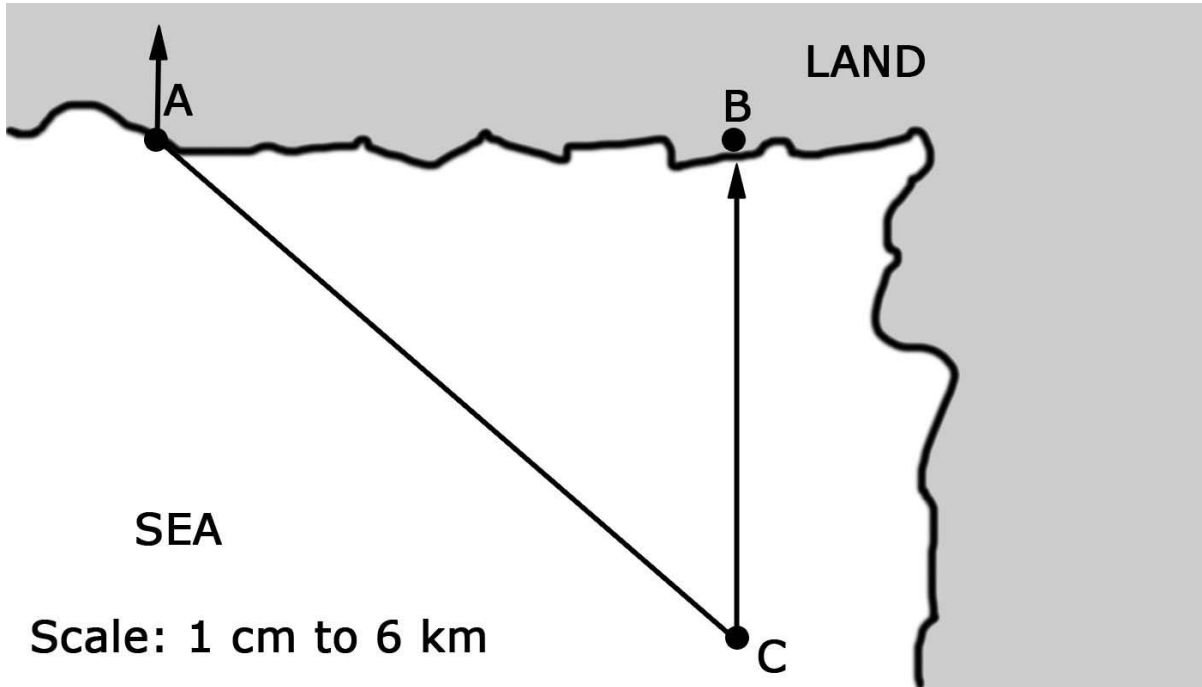
a) $\frac{1}{3} + \frac{3}{4} = \frac{1+3}{3+4} = \frac{4}{7}$

b) $\frac{2}{7} \times \frac{5}{6} = \frac{2 \times 5}{7 \times 6} = \frac{10}{42} = \frac{4}{21}$

c) $\frac{3}{4} \div \frac{9}{16} = \frac{3}{4} \times \frac{16}{9} = \frac{1}{4} \times \frac{4}{3} = \frac{4}{12} = \frac{1}{3}$

[6]

5. The diagram below shows two towns A and B and a ship C . B is directly east of A , and B is directly north of C .



Scale: 1 cm to 6 km

- a) Measure the distance between A and B and write the length in centimetres.

Answer cm [1]

- b) Calculate how far apart are the towns in kilometers.

Answer km [1]

- c) Measure the bearing of C from A .

Answer ° [2]

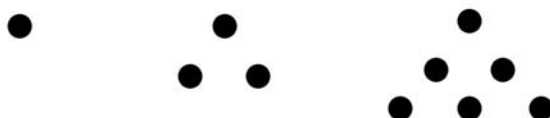
- d) Use your answer to c) to find the bearing of A from C .

Answer ° [2]

- e) Use your previous answers and **trigonometry** to calculate the distance between *A* and *C*.

Answer km [3]

6.



- a) Draw the next two diagrams in the sequence.

[2]

- b) Find the number of dots in the 9th diagram.

Answer [2]

- c) State which diagram has 78 dots.

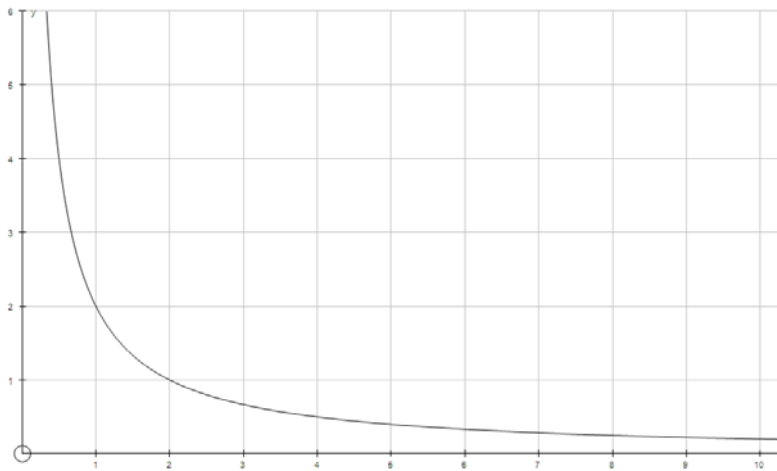
Answer [3]

Answers

1. a)

x	1	2	3	4	5	6	7	8	9	10
y	2	1	0.67	0.5	0.4	0.33	0.29	0.25	0.22	0.2

b)

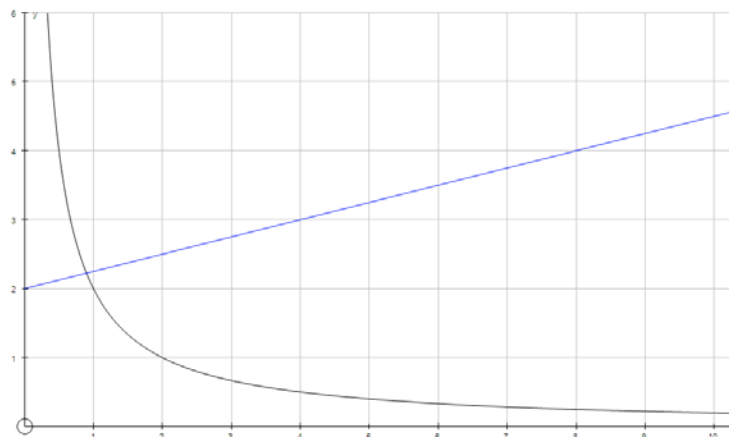


c) 0.5 (accept ± 0.1)

d)

x	0	4	8	10
y	2	3	4	4.5

e)



f) $0.25, \frac{1}{4}$

g) $x = 0.9$ (accept 0.8 – 0.95)

2. $x = 2, y = \frac{1}{2}$

3. a) 1847 cm^3

b) 1617 cm^3

c) 1.617 litres

d) 8 full tins

4.

a) $\frac{1}{3} + \frac{3}{4} = \frac{1+3}{3+4} = \frac{4}{7}$

Actual answer is $\frac{13}{12}$

b) $\frac{2}{7} \times \frac{5}{6} = \frac{2 \times 5}{7 \times 6} = \frac{10}{42} = \frac{4}{21}$

Actual answer is $\frac{5}{21}$

c) $\frac{3}{4} \div \frac{9}{16} = \frac{3}{4} \times \frac{16}{9} = \frac{1}{4} \times \frac{4}{3} = \frac{4}{12} = \frac{1}{3}$

Actual answer is $\frac{4}{3}$

5. a) 7.5 cm

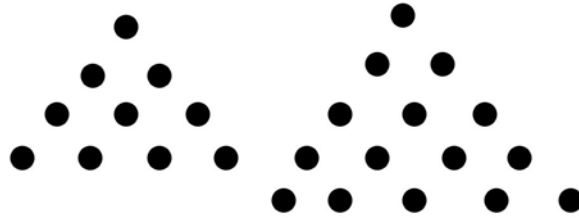
b) 45 km

c) 130°

d) 310°

e) 78.3 km

6. a)



b) 45

c) 12