REVISION WORKSHEET 1

Numbers & Computation

1.

In 1950, the population of Switzerland was 4 714 900.
In 2000, the population was 7 087 000.

(a) Work out the percentage increase in the population from 1950 to 2000.

Answer (a)..... % [2]

(b) (i) Write the 1950 population correct to 3 significant figures.

Answer (b)(i) ..... [1]

(ii) Write the 2000 population in standard form.

Answer (b)(ii) ..... [1]

2.

(a) Maria paid \$1320 tax in 1999. She paid 10% less tax in 2000.
Calculate the tax Maria paid in 2000.

(b) \$1320 was 10% **more** than she paid in 1998.
Calculate the tax Maria paid in 1998.

3.

The ratios of teachers : male students : female students in a school are 2 : 17 : 18.
The total number of **students** is 665.
Find the number of **teachers**.

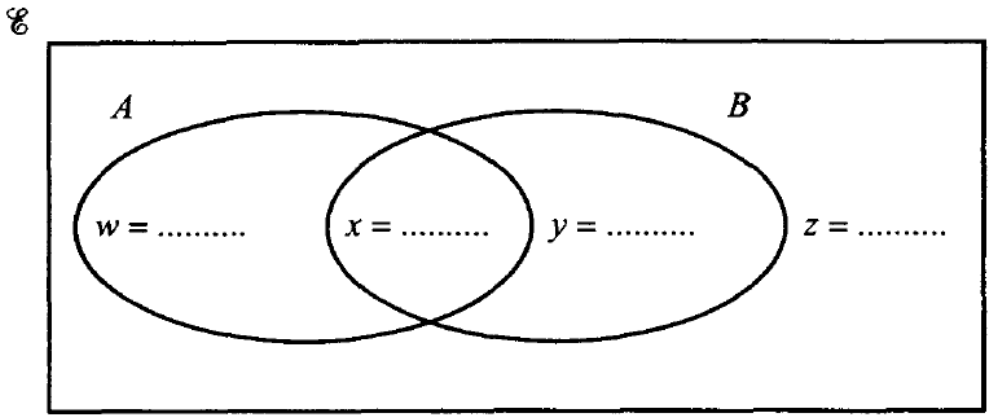
Consumer Arithmetic

4.

a) A stove can be bought on hire purchase by making a down payment of \$4,000 and monthly payments of \$1,500 for 2 years. Find the hire purchase price of the stove.
b) The hire purchase price of a refrigerator is \$76,800. If a deposit of \$12,000 is made and monthly payments of \$$x$ are made over 2 years. Find x, the amount of each monthly payment.

Sets

5.

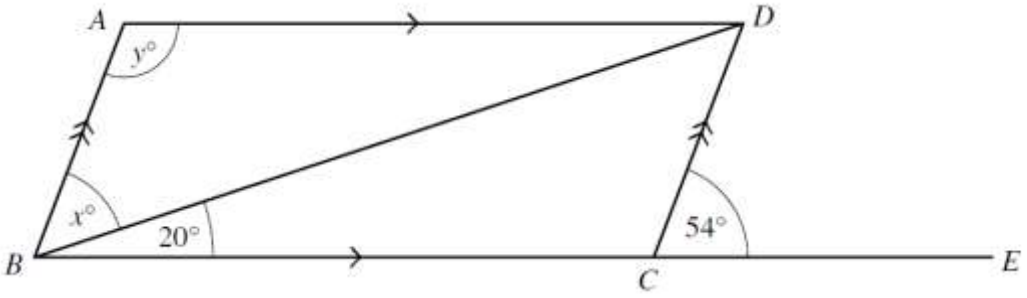


100 people were asked which magazines they read.
Half of those asked read neither magazine A nor magazine B.
27 read magazine A and 43 read magazine B.

(a) Calculate how many people read both magazines.
Write your answer in the appropriate place in the Venn diagram above.

Geometry1 & Trigonometry 1

6.

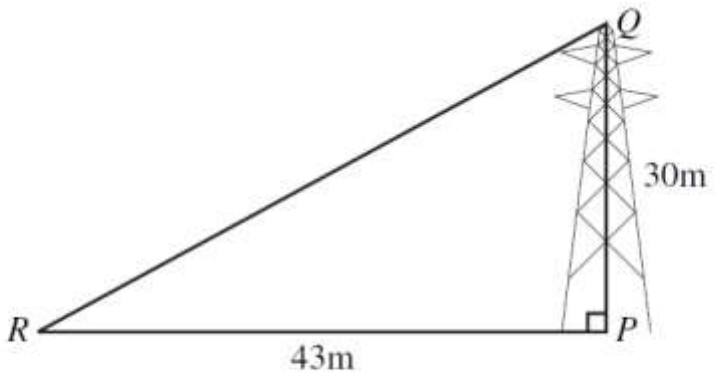


NOT TO SCALE

$ABCD$ is a parallelogram and BCE is a straight line. Angle $DCE = 54°$ and angle $DBC = 20°$.

Find x and y.

7.



NOT TO SCALE

A pylon PQ is 30 metres high and it stands on level ground.
Its base P is 43 metres from a point R.
Find the angle of elevation of the top of the pylon from R.

8.

From a harbour, H, the bearing of a ship, S, is 312°. The ship is 3.5 km from the harbour.

(a) Draw a sketch to show this information.
Label H, S, the length 3.5 km and the angle 312°.

(b) **Calculate** how far north the ship is of the harbour.

Sequence and Patterns

9.

8, 15, 22, 29, 36, ……..

A sequence of numbers is shown above.

(a) Find the 10th term of the sequence.

Answer(a) ..... [1]

(b) Find the nth term of the sequence.

Answer(b) ..... [1]

(c) Which term of the sequence is equal to 260?

Answer(c) ..... [1]

Mensuration

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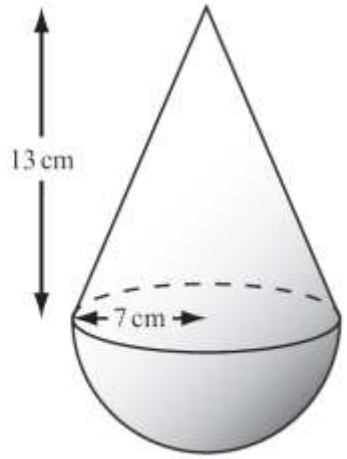

NOT TO SCALE

The diagram shows a solid made up of a hemisphere and a cone.
The base radius of the cone and the radius of the hemisphere are each 7 cm.
The height of the cone is 13 cm.

(a) **(i)** Calculate the total volume of the solid.

[The volume of a hemisphere of radius r is given by $V = \frac{2}{3}\pi r^3$.]

[The volume of a cone of radius r and height h is given by $V = \frac{1}{3}\pi r^2 h$.] [2]

(ii) The solid is made of wood and 1 cm^3 of this wood has a mass of 0.94 g.
Calculate the mass of the solid, in kilograms, correct to 1 decimal place. [3]

(b) Calculate the curved surface area of the cone.
[The curved surface area of a cone of radius r and sloping edge l is given by $A = \pi r l$.] [3]

(c) The cost of covering all the solid with gold plate is $411.58.
Calculate the cost of this gold plate per square centimetre.

[The curved surface area of a **hemisphere** is given by $A = 2\pi r^2$.] [5]

Geometry 2 (Circle Theorem) & Trigonometry 2

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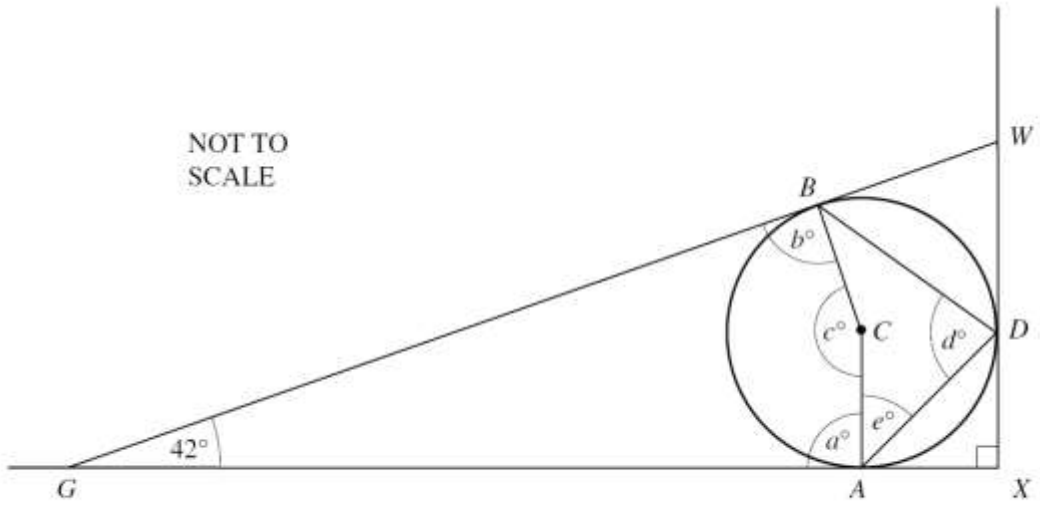

A sphere, centre C, rests on horizontal ground at A and touches a vertical wall at D.
A straight plank of wood, GBW, touches the sphere at B, rests on the ground at G and against the wall at W.
The wall and the ground meet at X.
Angle $WGX = 42°$.

(a) Find the values of a, b, c, d and e marked on the diagram. (state your reason) [5]

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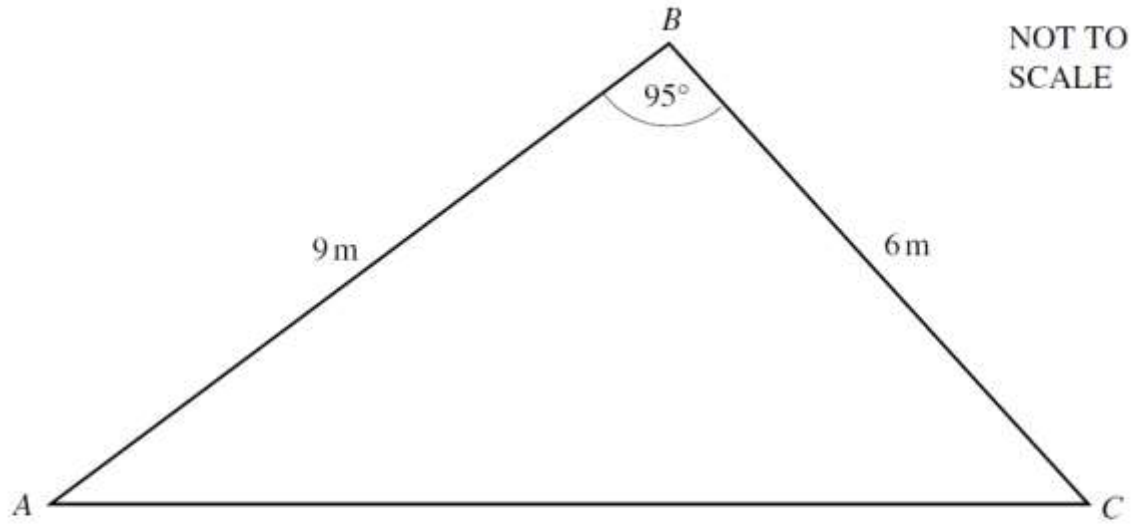

The triangular area ABC is part of Henri's garden.
$AB = 9$ m, $BC = 6$ m and angle $ABC = 95°$.
Henri puts a fence along AC and plants vegetables in the triangular area ABC.
Calculate

(a) the length of the fence AC,

(b) the area for vegetables.

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$$\mathbf{A} = \begin{pmatrix} 4 & x \\ -3 & 6 \end{pmatrix}, \quad \mathbf{B} = \begin{pmatrix} 5 & -3 \\ -2 & 2 \end{pmatrix}, \quad \mathbf{C} = \begin{pmatrix} 6 & 2 \\ y & 21 \end{pmatrix}.$$

(a) If $\mathbf{AB} = \mathbf{C}$, find the value of x and the value of y.

(b) Find $\mathbf{B}^{-1}$, the inverse of $\mathbf{B}$.

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$\mathbf{a} = \begin{pmatrix} 2 \\ -3 \end{pmatrix}$ and $\mathbf{b} = \begin{pmatrix} 5 \\ -1 \end{pmatrix}$. Find $3\mathbf{a} - 2\mathbf{b}$.

Answer $\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [2]

a) Find $3\mathbf{a} - 2\mathbf{b}$.

b) Find the $|3\boldsymbol{a} - 2\boldsymbol{b}|$ (i.e ,the magnitude of the vector in your answers for a)