

REVISION WORKSHEET 2

Numbers & Computation & Consumer Arithmetic

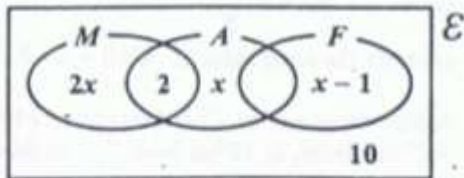
1.

- (a) Calculate the exact value of $1\frac{1}{3} - 3\frac{5}{6} + 5\frac{1}{9}$ (4)
- (b) Write the value of 0.428×2.75
- exactly in decimal form
 - to two decimal places
 - to two significant figures. (3)
- (c) A company sells its printers to customers in order to make a profit of 25%. Calculate
- the price a customer pays for a printer which the company bought for \$1 700
 - the price the company paid for a printer which was sold to a customer for \$2 500. (5)

Sets

2.

- (a) The Venn Diagram below shows the number of students doing Mathematics (M), Accounts (A) and French (F) in a class of 50.



- Write down an expression, in terms of x , for the number of students who do Accounts.
- Write down an equation, in terms of x , which shows the information in the Venn diagram
- Determine the number of students who do Mathematics only.
- Determine the number of students who do French. (8)

Geometry1 & Trigonometry 1

3.

The base, N , of an antenna rests on horizontal ground. The angle of elevation of the top R , from a point H on the ground is 42° .

The angle of elevation of R from a second point G , 6 m closer to N than H , is 53.2° .

- (a) Draw a diagram to show the information above, labelling all given points, distances and angles. (4)
- (b) Calculate, to 3 significant figures
- the length RG
 - the height RN , of the antenna. (7)
- (c) A third point, C , lies on the ground 5.4 m from N . The angle of depression of C from R is x degrees. Calculate, to the nearest degree, the value of x .

Sequence and Patterns

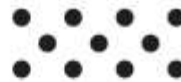
4.



Pattern 1



Pattern 2



Pattern 3

The first three patterns in a sequence are shown above.

- (a) Complete the table.

Pattern number	1	2	3	4
Number of dots	5			

- (b) Find a formula for the number of dots, d , in the n th pattern. [1]

Answer (b) $d = \dots\dots\dots$ [1]

- (c) Find the number of dots in the 60th pattern.

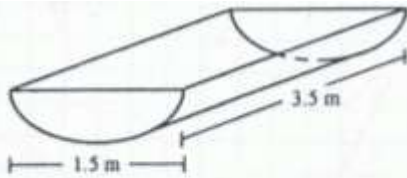
Answer (c) $\dots\dots\dots$ [1]

- (d) Find the number of the pattern that has 89 dots.

Answer (d) $\dots\dots\dots$ [1]

Mensuration

5.



[Take $\pi = 3.142$]

[Curved surface area of a cylinder = $2\pi r h$]

The diagram above, not drawn to scale, represents an open metal container. The cross-section of the container is a semi-circle of diameter 1.5 m. The length of the container is 3.5 m.

- (a) Write down the radius of the cross-section of the container. (1)
 - (b) Calculate, in m^2 , to two decimal places
 - (i) the area of the cross-section of the container
 - (ii) the outer curved surface area of the container
 - (iii) the total outer area of the container. (6)
 - (c) Calculate the capacity, in m^3 , of the container. (1)
 - (d) Water is poured into the container at a rate of 30 litres per minute. Calculate the length of time, in minutes, it would take to just fill the container. (3)
- [1 $m^3 = 1000$ l]

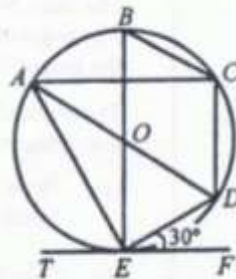
Geometry 2 (Circle Theorem) & Trigonometry 2

6.

In the figure, not drawn to scale, O is the centre of the circle $ABCDE$ and TEF is a tangent to the circle at E .

Given that $\angle DEF = 30^\circ$, calculate, giving reasons to support your answer, the size of the angle

- (i) $\angle ACD$
- (ii) $\angle EAD$
- (iii) $\angle EOD$
- (iv) $\angle BCD$



(6)

Matrices & Vectors

7.

(a) R is the matrix $\begin{pmatrix} 3r & -1 \\ s & 2s \end{pmatrix}$.

- (i) State, in terms of s and r , the determinant of R .
- (ii) If $r = \frac{1}{3}$ and $s = 4$, determine the inverse of R .

- (iii) State a pair of values of r and s , not including zero, which would make the matrix R a singular matrix.