

Surname	
Other Names	
Candidate's Signature	

## GCSE 9 - 1 Questions

### Dimensions

## Calculator Not Allowed

#### INSTRUCTIONS TO CANDIDATES

Write your name in the space provided.

Write your answers in the spaces provided in this question paper.

Answer ALL questions.

Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.

You should have a ruler, compass and protractor where required.

**Total Marks :**

1)  $p$ ,  $q$  and  $r$  represent lengths.

Choosing from

1.  $\frac{1}{2}\pi r^2 + pqr$

2.  $4\pi r^3 + 2\pi r^2$

3.  $pq\sqrt{(q^2 - p^2)}$

4.  $\frac{3pqr - 5qr^2}{7pr}$

5.  $\pi r(\pi r^3 - 2\pi r^2 p)$

6.  $p\sqrt{(q^2 + r^2)}$

find an expression which could represent

(a) length

Answer \_\_\_\_\_ [1]

(b) area

Answer \_\_\_\_\_ [1]

(c) volume

Answer \_\_\_\_\_ [1]

2)  $p$ ,  $q$  and  $r$  are measured lengths. Decide whether each of the expressions represent length, area, volume or none of these.

Expression A  $\frac{1}{3}\pi\left(\sqrt{r^2 + q^2}\right) \times p$

Answer A \_\_\_\_\_

Expression B  $p(q + r^2)$

Answer B \_\_\_\_\_

Expression C  $\frac{p^2 - 2pq}{q}$

Answer C \_\_\_\_\_ [2]

3)  $h$ ,  $l$  and  $r$  represent lengths.

Complete the table below indicating whether the expressions could represent

length      area      volume      none of these

	length	area	volume	none of these
$\frac{3\pi r^2 h}{2rl}$		$\frac{\pi r l h}{r^3}$	$4\pi r^2(l + h)$	$(l + r)(h - r)$

[3]

4)  $a$ ,  $b$ ,  $c$  and  $d$  are all lengths.

Which of W, Y, Z, M, K and Q represent length, area or volume?

$$W = \pi abc \quad Y = \sqrt{(a^2 + b^2)} \quad Z = \frac{a + b}{c - d}$$

$$M = ab^2 - cd \quad K = 2a + 4cd \quad Q = 4(ab + ac)$$

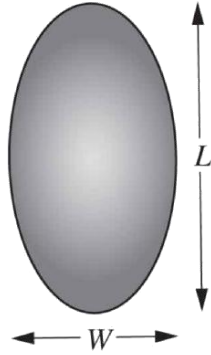
Answer Length \_\_\_\_\_

Area \_\_\_\_\_

Volume \_\_\_\_\_

[3]

5)



Only one of the following formulae could be used to calculate the volume of this egg.

$$V = \frac{1}{6} \pi L W$$

$$V = \frac{1}{6} \pi (L + W)$$

$$V = \frac{1}{6} \pi L W^2$$

$$V = \frac{1}{6} \pi L^2 W^2$$

Which formula is correct? Explain your answer.

Formula  $V =$  \_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_ [2]

6) (a)  $k$ ,  $m$  and  $n$  are all lengths.

Decide whether each of the expressions below represent length, area, volume or none of these.

(i)  $\frac{\pi k^2}{m - n}$

Answer \_\_\_\_\_ [1]

(ii)  $\frac{1}{2} k \sqrt{m^2 + n^2}$

Answer \_\_\_\_\_ [1]

(b) Find the value of  $x$  if  $\frac{m^x}{n(n + k)}$  represents a length.

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