

## Senior Cycle Multiple Choice Mathematics Test (Ordinary Level)

- ✓ Please indicate your answer by placing an ✕ over the letter of your choice as shown.
- ✓ You should indicate one answer for each question.
- ✓ If you make a mistake and wish to change your answer, please place the incorrect selection in brackets [✕] and ✕ your revised choice.
- ✓ Calculator use is not permitted.
- ✓ Please show all your work.

<b>School:</b>	<b>Class:</b>
<b>Date Administered:</b>	<b>Administered by:</b>
<b>Date Corrected :</b>	<b>Date Analysed:</b>

<b>Student Name :</b>	
<b>DOB :</b>	<b>AGE:</b>

Exams can be marked using a four point category scale that is used by the State Examinations Commission. The total number of marks per question can be altered dependent upon the agreed marking scheme of individual school's mathematics departments. A spreadsheet is available to help analyse the results at: <http://www.pdst.ie/node/2879>

Out of a total of 10 marks for each question, award marks as following:  
0 marks- response of no substantial merit **or** correct response with no work shown.  
3 marks- response with some merit  
7 marks- almost correct response  
10 marks- correct response with work shown.

### Question 1

$f$  is a function defined for all real numbers such that  $f(x) = 3 - 2x$ . Then  $f(0.5)$  is:

(a) 0.5

(b)  $\frac{1}{2}$

(c) 1

(d) 2

Show all work

### Question 2

$p(0,7), q(7,0), r(4,4)$  and  $s\left(3\frac{1}{2}, 3\frac{1}{2}\right)$  are four points. Three of them lie on the same straight line. The odd one out is?

(a)  $p$

(b)  $q$

(c)  $r$

(d)  $s$

Show all work

### Question 3

A line through the origin  $(0,0)$ , which has a slope of 2 has an equation of:

- (a)  $2x - y = 0$     (b)  $x - 2y = 0$     (c)  $2x - y + 3 = 0$     (d)  $x + 2y + 4 = 0$

Show all work

### Question 4

$3^2 + 3^3$  is:

- (a)  $3^5$                       (b)  $2^2(3^2)$                       (c) 54                      (d)  $3^6$

Show all work

### Question 5

The mean of 3 numbers is 5. When each number is doubled the new mean is:

- (a) 10                      (b) 15                      (c) 8                      (d)  $2\frac{1}{2}$

Show all work

### Question 6

The line  $2x + 3y - 6 = 0$  cuts the x-axis at

- (a) (0,2)                      (b) (0,3)                      (c) (3,0)                      (d) (2,0)

Show all work

### Question 7

The two roots to this equation  $x^2 - 4x - 12 = 0$  when it is solved are:

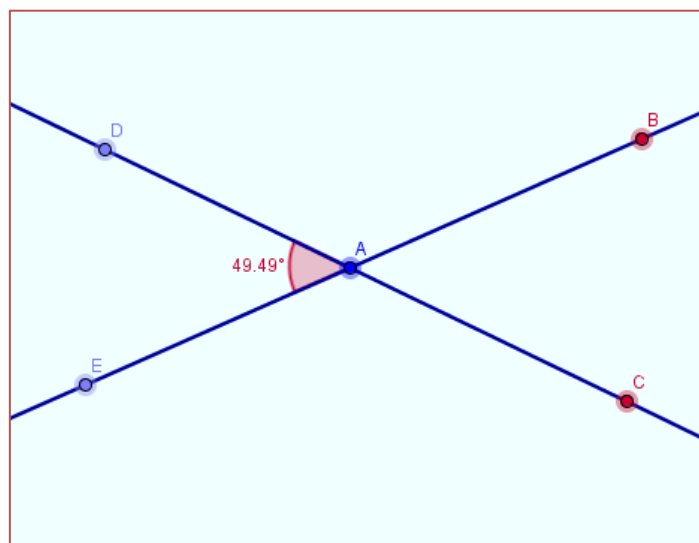
- (a) -6 and -2    (b) +4 and -2    (c) -4 and -2    (d) +6 and -2

Show all work

### Question 8

In the diagram  $|\angle DAB| =$

- (a)  $180^\circ$     (b)  $49.49^\circ$     (c)  $30^\circ$     (d)  $130.51^\circ$



Show all work

**Question 9**

Diesel costs  $s$  cent per litre while unleaded petrol costs 3 cent per litre more than diesel. How many cents does  $u$  litres of unleaded cost?

(a)  $u(s+3)$

(b)  $s+3$

(c)  $s-3$

(d)  $us-3$

Show all work

### Question 10

Two dice are thrown and the scores added. What's the most likely total?

- (a) 6                      (b) 7                      (c) 9                      (d) 12

Show all work

### Question 11

When  $\frac{x}{2}$  is added to  $\frac{x}{3}$ , the result is:

- (a)  $\frac{x}{3}$       (b)  $\frac{5x}{6}$       (c)  $\frac{2x}{5}$       (d)  $3y = 2x$

Show all work

### Question 12

The factors of  $x^2 + 5x + 4$  are:

- (a)  $(x-4)(x-1)$     (b)  $(x+4)(x+1)$     (c)  $x=4, x=1$     (d)  $(x-4)(x+1)$

Show all work

### Question 13

On a pie chart representing the numbers of students in a school, first year students are represented by an angle of  $x^\circ$ . If there are 100 students in first year and 750 students in total in the school, then:

- (a)  $x = 200$     (b)  $x = 48$     (c)  $x = 360$     (d)  $x = 100$

Show all work



### Question 14

If  $x^3 = 64$  then:

- (a)  $x = 32$       (b)  $x = 16$       (c)  $x = 4$       (d)  $x = 8$

Show all work

### Question 15

The statement  $x^2 > x$  is

- (a) Always true      (b) Only true if  $x$  is positive  
(c) False if  $x$  is a proper fraction  
(d) Always true if  $x$  is a natural number

Show all work

### Question 16

$\left(\frac{1}{10}\right)^2 \times 1000$  is:

(a) 0.1

(b) 1

(c) 10

(d)  $\frac{1}{100}$

Show all work

### Question 17

60% of a number is 120, then 40% of the same number is:

(a) 48

(b) 100

(c) 80

(d) 72

Show all work

### Question 18

700 cm<sup>3</sup> in litres is:

- (a) 7      (b)  $\frac{7}{10}$       (c) 0.007      (d) 700

Show all work

### Question 19

If  $4:3 = 28:q$  then,

- (a)  $q=35$       (b)  $q=14$       (c)  $q=21$       (d)  $q=28$

Show all work

### Question 20

$2 - 4 \times 3$  is equal to:

- (a) 1      (b) +6      (c) -6      (d) -10

Show all work

### Question 21

$100^2 - 99^2$  is equal to:

- (a) 10,000      (b) 199      (c) 9801      (d) none of these

Show all work

### Question 22

0.0146 expressed in scientific notation (i.e. in the form  $a \times 10^n$  where  $1 \leq a < 10$ )

- (a)  $0.146 \times 10^{-1}$     (b)  $1.46 \times 10^{-2}$     (c)  $0.146 \times 10^{-3}$     (d)  $14.6 \times 10^{-3}$

Show all work

### Question 23

If  $A$  is an acute angle and  $\sin A = \frac{1}{2}$ , then

- (a)  $A = 90^\circ$     (b)  $A = 60^\circ$     (c)  $A = 30^\circ$     (d)  $A = 45^\circ$

Show all work

### Question 24

The slope of a line perpendicular to the line containing  $(0,3)$  and  $(-2,0)$  is:

- (a)  $-\frac{2}{3}$       (b)  $\frac{2}{3}$       (c)  $\frac{3}{2}$       (d)  $-\frac{3}{2}$

Show all work

### Question 25

How many numbers from 1 to 100 have the figure '5' in them?

- (a) 5      (b) 17      (c) 19      (d) 20

Show all work

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***Additional Space***

Blank space for writing or drawing.



