



GRADE 11 EXAMINATION
NOVEMBER 2007

**MATHEMATICS: PAPER I
(LO1 AND LO2)**

NAME:

ANSWER BOOKLET

QUESTION 8

On a particular day, the depth of water, y metres, at the entrance of a tidal harbour x hours after midday is given by the formula:

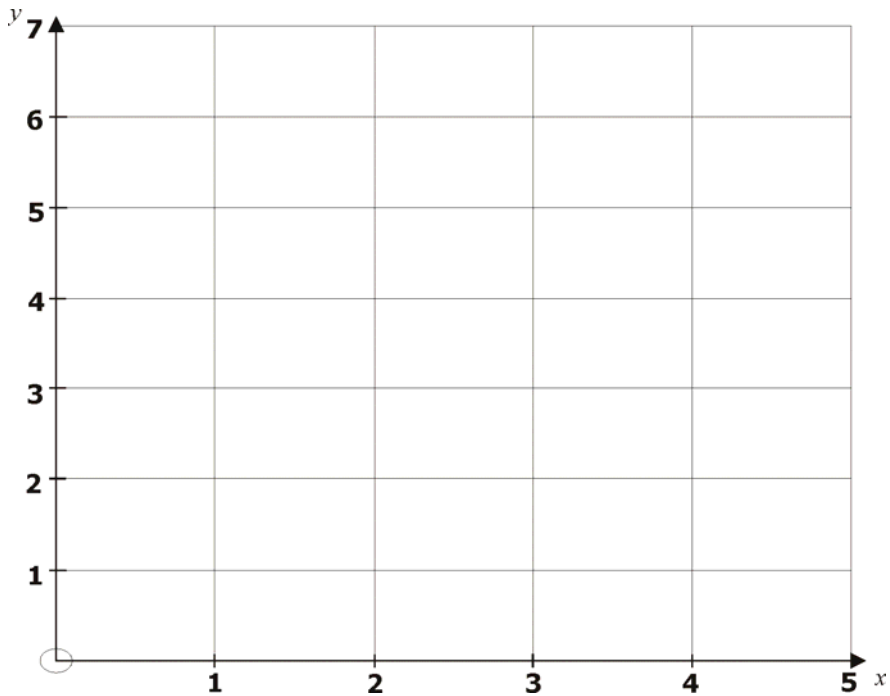
$$y = -x^2 + 3x + 4 \text{ for } 0 \leq x \leq 4$$

(a) Complete the table (in the Answer Booklet)

x (hours after 12:00)	0	1	1,5	2	3	4
y (depth in metres)		6			4	

(2)

(b) Draw a graph of y against x .



(4)

(c) What is the depth of water at the harbour entrance at midday?

(1)

(d) Determine when during the afternoon the entrance is dry.

(1)

(e) Determine the maximum depth of water at the entrance and when during the afternoon this occurs.

(2)

(f) A large ferry requires at least 6 m of water for it to be able to enter the harbour. Determine between which times of the afternoon the ferry can safely enter the harbour.

(2)

12 marks

QUESTION 9(B)

(b) Consider the following shapes created with shaded and white tiles:

Figure 1



Figure 2

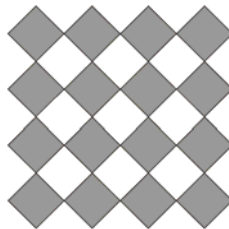
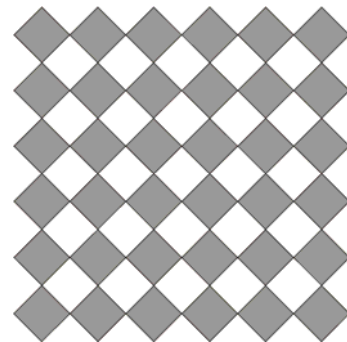


Figure 3



(1) Complete the table (in the Answer Booklet):

Figure No.	1	2	3			11
No. of Shaded tiles	4		36		144	
No. of White tiles	1					
Total No. of tiles	5			113		

(5)

- (2) Hence determine a formula for the total number of blocks in the n^{th} figure.

(3)

8 marks