

SECOND FORM MATHEMATICS

Promotion Examination 2012

Time: 1 hour, 35 minutes

Harrison College

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170 copies

Answer all questions. All working must be shown where possible.

Show all working. *Calculators are not allowed.*

1. Calculate:

i)  $-\frac{1}{2} \div -\frac{3}{10}$  [2]

(ii)  $0.013 \times 1.2$  [2]

(iii)  $2^3 - 3^2$  [2]

2. Write the next two terms in the sequence

3,6,11,18,27, ----, --- [2]

3. Write in standard form: a) 0.0038      b) 365.91 [4]

4. Given that Principal = \$320.00

Rate = 8 % per annum

Time = 6 months

Calculate :

(i) The simple interest. [3]

(ii) The amount. [3]

5. Use the theorem of Pythagoras to calculate the length of YZ given that in triangle XYZ,

Angle X is a right angle; XY = 5 metres and XZ = 8 metres. [5]

(Leave the square root in your answer).

6. The scale of a plan is given as 5cm to 8 metres.

(i) Find the actual distance represented by 1.2 cm. [3]

(ii) What distance on the plan is used to represent 25 metres. [3]

7. Simplify the following:

(i)  $2(x + y) - (x + y)$  [3]

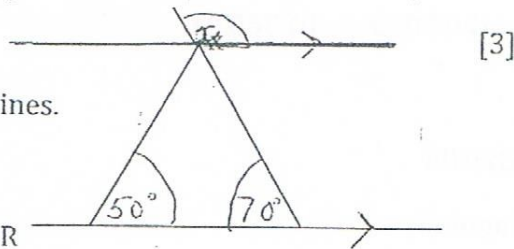
(ii)  $\frac{x}{2} + \frac{3x}{4}$  [3]

8. Given that the three angles of a triangle are  $(2x+5)$ ,  $(x+15)$  and  $(2x+10)$ . Calculate the size of each angle. [5]

9. Change the subject of the equation to the letter indicated:

$$L = 3mp \quad (m) \quad [2]$$

10. Find angle  $x^\circ$



The diagram shows two parallel lines.

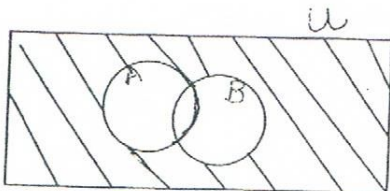
11. Solve the following where  $x \in \mathbb{R}$

a)  $4(x + 2) = 6 - 5x$  [3]

b)  $5 - 4y \leq 25$  [3]

12. Calculate the total amount Mary works for in a week if she works 40 hours earning a basic ~~rate~~ <sup>rate</sup> of \$4.50 per hour. She also works for seven hours on Saturday and three hours on Sunday. Work on Saturday is paid at time-and-a-half and work on Sunday is paid at double-time. Calculate the total amount she receives altogether. [6]

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Describe the shaded area in set notation.

[4]