

OUR LADY OF THE SACRED HEART COLLEGE

KENSINGTON



STUDENT – NAME \_\_\_\_\_

MATHEMATICS TEACHER \_\_\_\_\_

## 2010 Year 10 – Mathematics

### Non-Calculator Mathematics Assessment

Time allowed: 25 minutes

#### Directions to Candidates

- Calculators may NOT be used
- All answers to be written in the spaces provided
- Read all questions carefully
- All questions are to be attempted
- All working must be shown
- All questions are worth 1 mark
- Good luck!

#### Outcomes to be assessed:

- NS4.3 Operates with fractions, decimals, percentages, ratios and rates
- SGS3.2a Manipulates, classifies and draws two-dimensional shapes and describes side and angle properties
- SGS4.2 Identifies and names angles formed by the intersection of straight lines, including those related to transversals on sets of parallel lines, and make use of the relationships between them
- MS4.1 Calculates surface area of rectangular and triangular prisms and volume of right prisms and cylinders
- MS4.3 Performs calculations of time that involve mixed units.
- PAS4.2 Creates, records, analyses and generalises number patterns using words and algebraic symbols in a variety of ways.
- PAS4.3 Uses the algebraic symbol system to simplify, expand and factorise simple algebraic expressions
- PAS4.4 Uses algebraic techniques to solve linear equations and simple inequalities
- DS4.1 Constructs, reads and interprets graphs, tables, charts and statistical information.
- DS4.2 Solves probability problems involving simple events
- WM4.3 Uses mathematical terminology and notation, algebraic symbols, diagrams, text and tables to communicate mathematical ideas

Answer the questions in the space provided

1  $6 \times 0.5 =$

.....  
.....

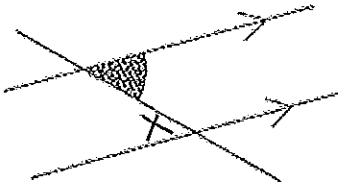
2  $m \div m =$

.....

3 How many thirds are there in 4?

.....  
.....

4 On the diagram below, mark with a cross the alternate angle to the one shaded.



5 The savings of 11 students are recorded in the stem and leaf plot below

Stem	Leaf
2	8 9
3	2 5 6 8
4	4 7 8
5	1 3

What is the median saving?

.....

6 Arrange the following from smallest to largest.

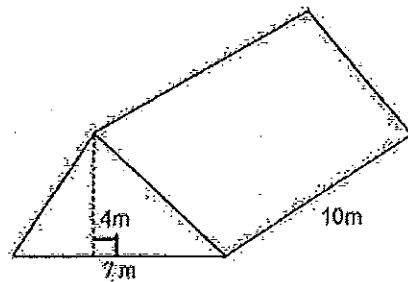
$\frac{1}{4}$ , 0.4, 4%, 4

.....  
.....

7 If the sun rises at 5.25 am and sets at 8.11 pm, how many hours and minutes are there from sunrise to sunset?

.....  
.....

8



What is the volume of the triangular prism?

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9 Between which two consecutive whole numbers does  $\frac{9}{2}$  lie?

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10 Convert 0.4 hours to minutes.

---

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11  $475 \div 25 = 19$

What is the value of  $475 \div 2.5$ ?

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12 Courtney has a bag of ~~15~~ <sup>125</sup> chocolates. The probability of selecting a white chocolate from the bag is  $\frac{3}{5}$ .

How many white chocolates are in the bag?

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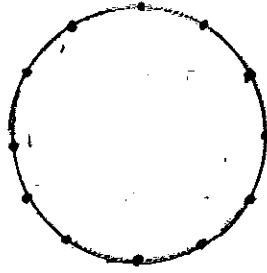
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13 Add 0.3 to  $\frac{1}{5}$ .

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- 14 There are 12 dots equally spaced around a circle.  
Join four dots on the circle to make a square.



- 15 What is the cost of 30 litres of petrol at 139.9 cents per litre?  
Answer to the nearest dollar.

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- 16 Consider the pattern.

$$\begin{aligned} 5^3 &= 125 \\ 5^4 &= 625 \\ 5^5 &= 3125 \\ 5^6 &= 15625 \end{aligned}$$

Use this pattern to write the last three digits of  $5^{20}$

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- 17 This table shows the income tax rates in Australia for 2009 – 2010.

<i>Taxable income</i>	<i>Tax on this income</i>
\$1 – \$6,000	NII
\$6,001 – \$35,000	15c for each \$1 over \$6,000
\$35,001 – \$80,000	\$4,350 plus 30c for each \$1 over \$35,000
\$80,001 – \$180,000	\$17,850 plus 38c for each \$1 over \$80,000
\$180,001 and over	\$55,850 plus 45c for each \$1 over \$180,000

How much tax would Liyisa pay if she earns \$10,000 in 2009-2010.

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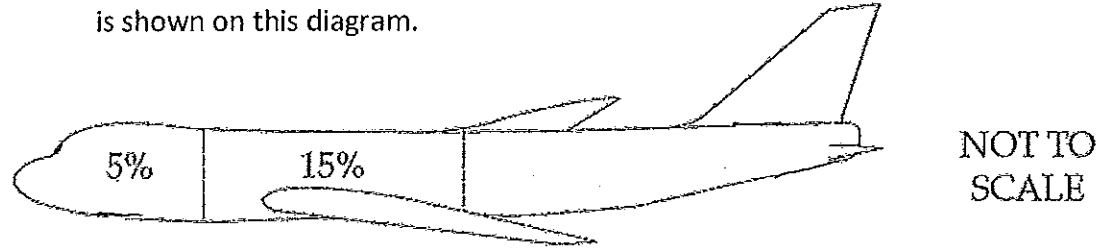


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18 Solve the equation:  $4(b - 5) = -60$

.....  
.....  
.....  
.....

19 On a flight, the percentage of passengers who flew First Class and Business Class is shown on this diagram.

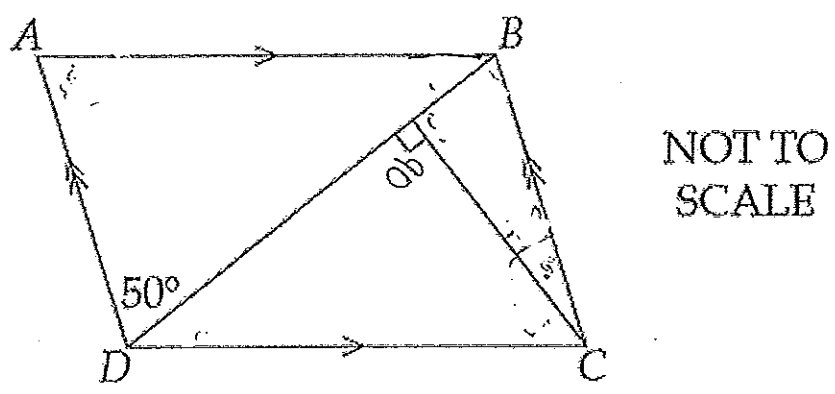


| First Class | Business Class | Economy Class |

If 320 people flew Economy Class, how many people flew Business Class?

.....  
.....  
.....

20 ABCD is a parallelogram



What is the value of  $x^\circ$ ?

.....  
.....  
.....  
.....

END OF EXAM

Answer the questions in the space provided

8

1  $6 \times 0.5 =$

$3.0$

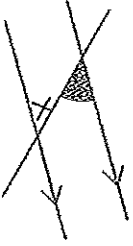
2  $m \div m =$

$1$

3 How many thirds are there in 4?

$12$

4 On the diagram below, mark with a cross the alternate angle to the one shaded.



5 The savings of 11 students are recorded in the stem and leaf plot below

Stem	Leaf
2	8 9
3	2 5 6 8
4	4 7 8
5	1 3

What is the median saving?

$37$

6 Arrange the following from smallest to largest.

$\frac{1}{4}, 0.4, 4\%, 4$

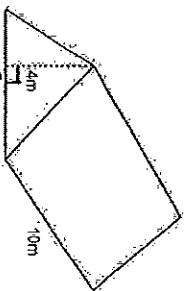
$0.4, 4\%, 4, \frac{1}{4}$

7 If the sun rises at 5.25 am and sets at 8.11 pm, how many hours and minutes are there from sunrise to sunset?

$6\text{hrs } 35 \text{ to } 12 + 8:11$

$14\text{hrs } 46 \text{ mins}$

8



What is the volume of the triangular prism?

$140 \text{ m}^3$

$10 \times 4 \times 7 \div 2$

$10 \times 4 \times 7 \div 2$

$140 \text{ m}^3$

$280 \text{ m}^3$

9 Between which two consecutive whole numbers does  $\frac{9}{2}$  lie?

$3 \text{ and } 4$

10 Convert 0.4 hours to minutes.

$0.4 \times 60 = 24 \text{ mins}$

$0.4 \times 60 = 24$

11  $475 \div 25 = 19$

What is the value of  $475 \div 2.5$ ?

$475 \times 10 \div 25 = 190$

12 Courtney has a bag of 15 chocolates. The probability of selecting a white chocolate from the bag is  $\frac{3}{5}$ .

How many white chocolates are in the bag?

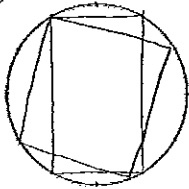
$9$

13 Add 0.3 to  $\frac{1}{5}$ .

$0.2 + 0.3 = 0.5$

$\frac{1}{5} = 0.2$

- 14 There are 12 dots equally spaced around a circle. Join four dots on the circle to make a square.



X

- 15 What is the cost of 30 litres of petrol at 139.9 cents per litre?

Answer to the nearest dollar.

$1.399 \times 30 = 41.97$   
 $\approx 42$   
 Answer = \$42 (nearest dollar)

- 16 Consider the pattern.

$5^3$	=	125	18.
$5^4$	=	625	18.
$5^5$	=	3125	18.
$5^6$	=	15625	18.

Use this pattern to write the last three digits of  $5^{20}$

625

- 17 This table shows the income tax rates in Australia for 2009 – 2010.

Taxable Income	Tax on this Income
\$1 – \$6,000	Nil
\$6,001 – \$35,000	15c for each \$1 over \$6,000
\$35,001 – \$80,000	\$4,350 plus 30c for each \$1 over \$35,000
\$80,001 – \$180,000	\$17,650 plus 38c for each \$1 over \$80,000
\$180,001 and over	\$55,950 plus 45c for each \$1 over \$180,000

How much tax would Liyisa pay if she earns \$10,000 in 2009-2010.

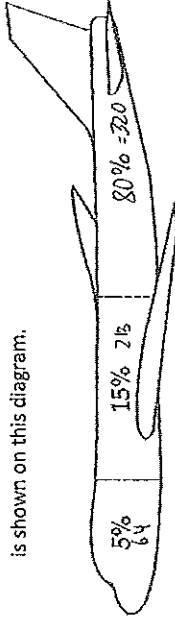
$15\% \times 4000 = \$24,000$   
 $24,000 - 4000 = 20,000$   
 Answer = \$20,000

\$600

- 18 Solve the equation:  $4(b - 5) = -60$

$4b - 20 = -60$   
 $4b = -40$   
 $b = -10$

- 19 On a flight, the percentage of passengers who flew First Class and Business Class is shown on this diagram.



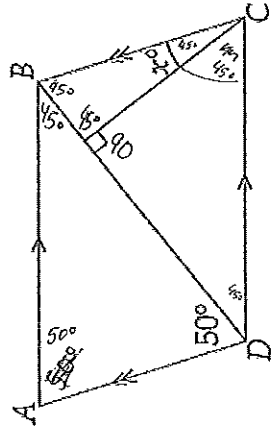
NOT TO SCALE

First Class | Business Class | Economy Class

If 320 people flew Economy Class, how many people flew Business Class?

$15\% \times 320 = 48$   
 $80\% \times 320 = 256$   
 $5\% \times 320 = 16$   
 Answer = 48

- 20 ABCD is a parallelogram



NOT TO SCALE

What is the value of x?

$x = 40^\circ$

END OF EXAM