



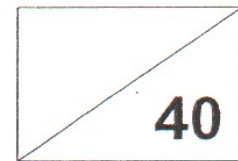
BUKIT BATOK SECONDARY SCHOOL
SECOND SEMESTRAL EXAMINATION 2011
Secondary One Express
Mathematics
PART 1

Name: _____ ()

Class: Sec 1 _____

Date: 10 Oct 2011

Duration: 1 hour (10 15 – 11 15)



READ THESE INSTRUCTIONS FIRST

1. Write your name, class and index number in the spaces provided on this page.
2. Answer **all** questions.
3. Write in dark blue or black pen.
4. Write your answers in the spaces provided on the question paper.
5. If working is needed for any question, show it in the space below that question.
6. Omission of essential working will result in the loss of marks.
7. **CALCULATORS MUST NOT BE USED IN THIS PART OF THE PAPER.**
8. This paper consists of 14 questions.
9. The intended marks for each question or part of a question are given in brackets [].
10. The total marks for this paper is 40.

This question paper consists of 8 printed pages, including this page.

Do not turn over until you are told to do so.

CALCULATORS MUST NOT BE USED IN THIS PART OF THE PAPER.

1 Consider the following numbers:

$$81, 0.13, 17, 1, 64, \frac{5}{13}, 125, \pi, 11, \sqrt{23}$$

Write down

- (a) two prime numbers,
- (b) two cube numbers,
- (c) two irrational numbers.

Ans: (a) _____ [1]

(b) _____ [1]

(c) _____ [1]

2. Given that $198 = 2 \times 3^2 \times 11$, and
 $60 = 2^2 \times 3 \times 5$,

find

- a) the LCM of 198 and 60. Express your answer in index notation.
- b) the smallest integer, k , such that $198k$ is a perfect square.

Ans: (a) _____ [1]

(b) _____ [1]

3 Terry weighs 60kg, while Sidney weighs 72 kg.
By what percentage is Sidney heavier than Terry?

Ans _____ [2]

- 4 Given that $\frac{5x}{2} = \frac{3y}{10}$, find the value of $x : y$.

Ans _____ [1]

- 5 The table shows the average temperature of four different countries on 1st January 2009.

Country	Singapore	Greenland	Norway	Hong Kong
Temperature	30°C	-22°C	-10°C	14°C

- (a) Which country was the coldest?
(b) What was the difference in temperature between Hong Kong and Norway?
(c) What was the average temperature of the four countries?

Ans: (a) _____ [1]

(b) _____ [1]

(c) _____ [1]

6. (a) Solve the inequality $\frac{2}{3}x \geq 11$.

- (b) Use your answer in part (a) to find the smallest value of x if x is an integer.

Ans: (a) _____ [1]

(b) _____ [1]

7 Evaluate

(a) $(-2)^3 - (-9 \times 4) \div (2 \times 3^2)$

Ans _____ [2]

(b) $2\frac{2}{3} \times (-\frac{1}{4}) - \frac{1}{12} \div \frac{1}{2}$

Ans _____ [2]

8 Expand and simplify the following expressions.

(a) $7m - 5k - 3(2k + 3m)$

Ans _____ [1]

(b) $\frac{2}{5}\left[6 - \frac{1}{3}(15x - 12)\right]$

Ans _____ [2]

9 Write down the missing terms in the following number sequences. [2]

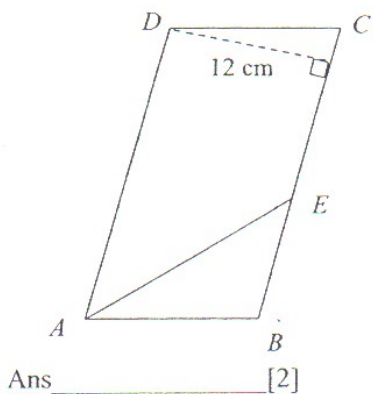
(a) 5, 7, 11, 19, 35, _____, _____.

(b) $\frac{1}{2}, \frac{3}{4}, \frac{7}{6}, \frac{21}{10},$

10 Express $\frac{4-2y}{5} - \frac{6y+1}{3}$ as a single fraction in its simplest form.

Ans _____ [3]

- 11 In the figure, ABCD is a parallelogram.
 If the area of parallelogram ABCD is 240 cm^2 , find the length of BC.



- 12 The back to back stem and leaf diagram shows the numbers of sit-up completed in one minute by 13 boys and 17 girls in Sec 1E5.

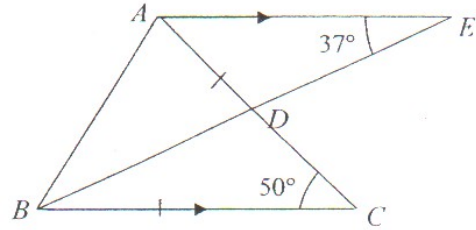
Boys		Girls
	1	9
9	2	7
	3	3 6 7
7 3 1	4	2 5 7 8 9
9 8 6 6 5 4	5	3 4 5 6 8
7 5 3	6	2 8
Key: 3 4 means 43		Key: 4 5 means 45

- (a) What is the median number of sit-up completed by the girls?
 Ans: (a) _____ [1]
- (b) What is the mode of the number of sit-up completed by all the students?
 Ans: (b) _____ [1]
- (c) Distinction is awarded to the best 20% of the students. What is the least number of sit-up has to be completed by this group of students in order to achieve distinction grade?
 Ans: (c) _____ [1]

- 13 In the diagram shown, BDE is a straight line and line AE is parallel to line BC . Triangle ABC is an isosceles triangle where $AC = BC$.

$\angle AEB = 37^\circ$ and $\angle ACB = 50^\circ$.

- Calculate (a) $\angle EDC$,
(b) $\angle BAC$,
(c) $\angle ABE$.



State your reason clearly for each angle property used.

(a)

Ans(a) _____ [2]

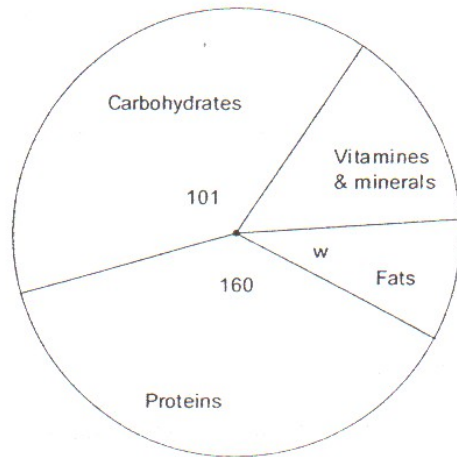
(b)

Ans(b) _____ [1]

(c)

Ans(c) _____ [1]

14. The pie chart shows the composition of a fast-food product.
 It is given that there are twice as much of Vitamin & minerals as Fat.
- Calculate the value of w .
 - Calculate the percentage of Fats in the fast-food product. Give your answer as a fraction.
 - Given that one such fast-food product contains 200 grams of proteins, calculate the total mass of the fast-food product.,



Ans:(a) _____ [2]

(b)

Ans(b) _____ [2]

(c)

Ans(c) _____ [2]

End of paper

Answer key

Q1 (a) 17, 11 (b) 1, 64, 125 (c) $\pi, \sqrt{23}$

Q2 (a) $2^2 \times 3^2 \times 5 \times 11$, (b) 22

Q3 20%

Q4 3 : 25

Q5 (a) Greenland (b) 24° C (c) 3° C

Q6 (a) $x \geq 16\frac{1}{2}$ (b) 17

Q7 (a) -6 (b) $-\frac{5}{6}$

Q8 (a) -2m-11k (b) 4-2x

Q9 (a) 67, 131 (b) $\frac{13}{8}, \frac{31}{12}$

Q10 $\frac{7-36y}{15}$

Q11 20cm

Q12 (a) 48 (b) 56 (c) 59

Q13 (a) 87° (b) 65° (c) 28°

Q14 (a) 33° (b) $9\frac{1}{6}\%$ (c) 450g