

Name: \_\_\_\_\_ (            )

Class: \_\_\_\_\_



# WHITLEY SECONDARY SCHOOL

*A Caring and Learning Community*

*Discipline \* Integrity \* Respect \* Responsibility*

## END-OF-YEAR EXAMINATION 2011

**SUBJECT** : Mathematics Paper 1

**LEVEL** : Sec 1 Express

**DATE** : 4 October 2011

**DURATION** : 1 hr 15 min

**SETTER(S)** : Jaime Ong

**VETTER(S)** : Eddie Yong, Yong Kwee Fah,  
Yap W. M.

### READ THESE INSTRUCTIONS FIRST

Write your name and index number on all the work you hand in.  
Write in dark blue or black pen on both sides of the paper.  
You may use a pencil for any diagrams or graphs.  
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer all the questions on writing paper provided.  
If working is needed for any question it must be shown with the answer.  
Omission of essential working will result in loss of marks.  
Calculators should be used where appropriate.  
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degree to one decimal place.  
For  $\pi$ , use either your calculator value or 3.142, unless the question requires the answer in terms of  $\pi$ .

At the end of the examination, fasten all your work securely together.  
The number of marks is given in brackets [ ] at the end of each question or part question.  
The total marks for this paper is 50.

This paper consists of 2 printed pages, including the cover page.

437

1. Correct 0.099843 to
- (a) 3 significant figures,
- (b) 2 decimal places.

Answer: (a) \_\_\_\_\_ [1]

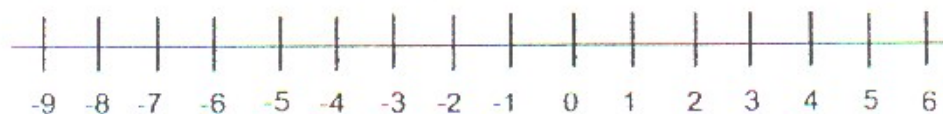
(b) \_\_\_\_\_ [1]

2. Which of the following two numbers are *not* prime numbers?

1, 5, 17, 19, 33, 37

Answer: \_\_\_\_\_ & \_\_\_\_\_ [2]

3. Express  $-3 \leq x \leq 2$  on the number line below:



[1]

4. Given that  $\frac{3}{13}$    $0.44$    $-2\frac{1}{4}$ , [2]

Fill in the boxes with '+', '-', '×' or '÷' so that the result is 1.22 (*corrected to 3 significant figures*).

5. Write down the next **two** terms in the number sequence.

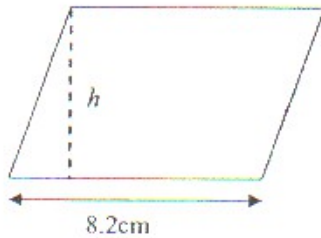
(a)  $\frac{1}{2}$ , 1,  $\frac{3}{2}$ , 2, \_\_\_\_\_, \_\_\_\_\_, [1]

(b) -10.5, -8, -5.5, -3, \_\_\_\_\_, \_\_\_\_\_ [1]

6. If the density of the liquid is  $90 \text{ kg/m}^3$ , calculate the mass of the liquid in a tank with a volume of  $40 \text{ m}^3$ . Give your answer in kilograms.

Answer: \_\_\_\_\_ kg [1]

7. Given that the area of the parallelogram below is  $45 \text{ cm}^2$ , calculate its height.



Answer: \_\_\_\_\_ cm [1]

8. (a) Convert  $12\text{m}^2$  to  $\text{cm}^2$ .  
(b) Convert  $5\text{m}^3$  to  $\text{cm}^3$ .

Answer: (a) \_\_\_\_\_  $\text{cm}^2$  [1]

(b) \_\_\_\_\_  $\text{cm}^3$  [1]

9. Find the Highest Common Factor (HCF) and Lowest Common Multiple (LCM) of

$$2 \times 3^2 \times 5 \quad \& \quad 2^2 \times 3^3 \times 7 \times 13.$$

Leave your answers in index notation.

Answer: HCF = \_\_\_\_\_ [1]

LCM = \_\_\_\_\_ [1]

10. Evaluate the following, giving your answers in terminating or recurring decimal form.

(a)  $(2.85 - \frac{7}{11}) \times (-0.8)$

(b)  $\sqrt[3]{\frac{2.4}{0.4}}$

Answer: (a) \_\_\_\_\_ [1]

(b) \_\_\_\_\_ [1]

11. Express 22 minutes as a percentage of 3 hours.

Answer: \_\_\_\_\_ % [2]

12. Showing your steps clearly and without using your calculator, evaluate  $\frac{2}{3} + \frac{2}{9} \times \frac{1}{4}$ .  
Leave your answers in the lowest terms.

Answer: \_\_\_\_\_ [2]

13. Estimate the value of  $\frac{\sqrt{102} + 112.9}{10.55 \times 0.94}$ , leaving your answer in two significant figures.

Answer: \_\_\_\_\_ [2]

14. Solve the equation  $\frac{2}{3}(2x - 6) = 0$ .

Answer:  $x =$  \_\_\_\_\_ [2]

15. Simplify the expression  $\frac{1}{4}x + 1.6y + \frac{2}{3}x - y$ .

Answer: \_\_\_\_\_ [2]

16. John's tuition lesson starts at 10:30 am and ends at 1:05 pm. He has a 20 minutes break in between. Determine the time in hours and minutes John spends on tuition excluding the break.

Answer: \_\_\_\_\_ h \_\_\_\_\_ mins [2]

17. Given the algebraic equation  $W = \frac{x+8z^2}{3xy-2yz}$ , what is the value of  $W$  when  $x = 3$ ,  $y = -2$  and  $z = 4$ .

Answer:  $W =$  \_\_\_\_\_ [2]

18. Express  $\frac{-2(x+y)}{6} - \frac{x}{3}$  as a single fraction in its simplest form.

Answer: \_\_\_\_\_ [2]

19. Simplify  $\frac{3ac}{4ce} \div \frac{15ab}{16cd}$ .

Answer: \_\_\_\_\_ [2]

20. A pipe can fill a tank at the rate of 250 litres per hour. A tank has a capacity of 900 litres. Find the time needed to fill  $\frac{7}{8}$  of the tank.

Answer: \_\_\_\_\_ hours [2]

21. Expand and simplify  $10 - 3(2wx + 3)$ .

Answer: \_\_\_\_\_ [2]

22. (a) Solve the inequality  $2(2 + x) \geq -13$ .  
(b) Hence, write down the least possible value of  $x$  if  $x$  is rational.

Answer: (a) \_\_\_\_\_ [2]

(b) \_\_\_\_\_ [1]



23. (a) Express  $1.25 : \frac{3}{16}$  in its simplest form.
- (b) The ratio of the number of stamps Jason has to what Melvin has is 3 : 4.  
The ratio of the number of stamps Melvin has to what Harry has is 5 : 6.  
If Jason and Melvin together have 595 stamps, how many stamps does Harry have?

Answer: (a) \_\_\_\_\_ : \_\_\_\_\_ [1]

(b) \_\_\_\_\_ Stamps [3]

24. Using prime factorization, find
- (a) the square root of 484,
- (b) the cube root of 2744.

Answer: (a) \_\_\_\_\_ [2]

(b) \_\_\_\_\_ [2]

~ End of Paper ~

## Answers

Q1 (a) 0.0998

(b) 0.10

Q2. 1 & 33

Q3.



Q4.  $-$  and  $\infty$

Q5. (a)  $\frac{5}{2}$ , 3

(b) -0.5, 2

Q6. 3600kg

Q7. 5.49 cm

Q8. (a) 120 000cm<sup>2</sup>

(b) 5 000 000 cm<sup>3</sup>

Q9. HCF =  $2 \times 3^2$

LCM =  $2^2 \times 3^3 \times 5 \times 7 \times 13$

Q10. (a)  $-1.77\overline{09}$

(b) 1.82

Q11. 12.2

Q12.  $\frac{13}{18}$

Q13. 11

Q14. 3

Q15.  $\frac{11}{12}x + 0.6y$

Q16. 2 h 15 min

Q17. -65.5

Q18.  $-\frac{(2x+y)}{3}$

Q19.  $\frac{cd}{be}$

Q20. 3.15 hours

Q21.  $1 - 6wy$

Q22. (a)  $x \geq -8.5$

(b) -8.5

Q23. (a) 20:3

(b) 408

Q24. (a) 22

(b) 14