

**CHRIST CHURCH FOUNDATION SCHOOL
PROMOTION EXAMINATIONS JUNE 2013
MATHEMATICS
SECOND FORMS**

Answer ALL questions in both sections:

Time: 2 hours

SECTION I [20 marks]

Answer ALL questions from this section. (Two marks each). Write the **letter** that corresponds to the correct answer on the foolscap provided.

1. The number 0.07375 correct to two (2) significant figures is
(A) 0.0 (B) 0.07 (C) 0.073 (D) 0.074

2. If the mean of the numbers 6, 12, 8, x and 14 is 9. Then x =
(A) 5 (B) 6 (C) 8 (D) 45

3. If the area of one face of a cube is 36cm^2 . Then the volume of the cube in cm^3 is
(A) 6 (B) 36 (C) 72 (D) 216

4. What is $12\frac{1}{2}\%$ of 160.00
(A) \$1.60 (B) \$20.00 (C) \$1,280.00 (D) \$2,000.00

5. If $P = \{\text{prime numbers less than 15}\}$, $Q = \{\text{even numbers less than 16}\}$
then $P \cap Q =$
(A) $\{\}$ (B) $\{2\}$ (C) $\{1, 2\}$ (D) $\{1, 2, 14\}$

6. If $3(2x - 4) = 48$, then x =
(A) 10 (B) 8 (C) 6 (D) 3

7. The image of $X(3, -7)$ under a translation $\begin{matrix} -5 \\ -4 \end{matrix}$ is
- (A) $(-8, 11)$ (B) $(-2, 11)$ (C) $(-2, -11)$ (D) $\begin{matrix} -2 \\ -11 \end{matrix}$

8. If $a = 2$, and $b = 3$, then $ab^2 =$

- (A) 12 (B) 18 (C) 25 (D) 36

9. The number 29.9837 correct to one (1) decimal place is:

- (A) 29.9 (B) 30.0 (C) 299.8 (D) 29 983.7

10. The area of the triangle given below is

- (A) 23 (B) 24 (C) 40 (D) 60

SECTION II 80 MARKS:

Answer ALL questions in this section on the foolscap provided.

11. i) a) Change the base two number 10111 to base ten. [3 marks]

b) Change 76 in base ten to :

(i) Base two (ii) Base three [5 mark]

c) Multiply the base two numbers 10111×11 [2 marks]

12. a) Evaluate 0.25×0.47 [2 marks]

b) Evaluate $2\frac{1}{3} - \frac{1}{3} \times \frac{5}{8}$ [3 marks]

c) Write the following numbers in standard form:

i) 32, 700 ii) 0.00528 [4 marks]

13. i) Simplify: a) $3x - 2y + 6x - 7y$

b) $\frac{x}{3} + \frac{2x - 1}{4}$

c) $\frac{6x - 3}{3}$ [9 marks]

14. ii) Solve the following equations

a) $7x + 3 = 8$ b) $5x - 4 = 3x + 8$

c) $\frac{x + 2}{5} = 8$ [8 marks]

15. Calculate the values of A, B, C and D in the table given below.

[8 marks]

16. i) Using the x values of $-3, 0$ and 4 copy and complete the tables given below for the lines $y = 3x - 1$ and $y = -2x + 3$

$$y = 3x - 1$$

$$y = -2x + 3$$

ii) On the graph paper provided, using a scale of 2cm to 1 unit on the x axis and 1cm to 1 unit on the y axis, draw the straight lines of the graphs of $y = 3x - 1$ and $y = -2x + 3$ by plotting your points generated above in (i) (**draw both graphs on the same axes**).

iii) On the **same axes as above**, also draw the straight lines

$$y = 4 \quad \text{and} \quad x = -3$$

NB. Please label all four of your lines.

[12 marks]

17. a) Using a scale of 1cm : 1 unit on both axes, plot the points:
P(4, 5) Q(6, 1) and R(4, 1) and join them up to form triangle PQR.

b) On the same axes draw the line $y = -1$.

c) Reflect triangle PQR using the line $y = -1$, as the line of reflection.
Label the image $P_1 Q_1 R_1$.

d) Translate triangle PQR using the vectors:

i) $\begin{pmatrix} -10 \\ 3 \end{pmatrix}$ label the image $P_2 Q_2 R_2$

ii) $\begin{pmatrix} 0 \\ 5 \end{pmatrix}$ label the image $P_3 Q_3 R_3$

[12 marks]

18. State if the following statements are TRUE or FALSE.

a) Two is the only even prime number

b) The median is always the largest value.

c) One is the smallest prime number.

d) Vertically opposite angles are equal.

e) A square is a rectangle

f) A square is a rhombus

g) A scalene triangle has three equal sides.

h) A trapezium has four sides.

i) The mode is the middle value.

j) $(2)^3 = 6$

k) $(\frac{2}{3})^2 = \frac{4}{3}$

l) Speed = Distance \times Time

[12 marks]

%**#*****#*****%***

TOTAL MARKS = 100

END OF EXAM:

PLEASE CHECK OVER YOUR WORK CAREFULLY.