



**2017 SCHOLARSHIP EXAMINATION**

**MATHEMATICS**

Time: 1 HOUR

Name: \_\_\_\_\_

School: \_\_\_\_\_

**INSTRUCTIONS**

Complete **ALL** questions (**64 marks** in total)

Non Calculator

1. Using the information that

$$9.4 \times 12.8 = 120.32$$

write down the value of

(a)  $94 \times 128$

.....  
(1)

(b)  $12032 \div 12.8$

.....  
(1)

(Total for Question 1 is 2 marks)

---

2. Find the answers to these. Give the answer as a mixed number or as a fraction in its simplest form.

a)  $\frac{3}{8} + \frac{2}{9}$

(2)

b)  $\frac{5}{7} \times \frac{3}{10}$

(2)

c)  $2\frac{1}{5} + 3\frac{5}{9}$

(3)

(Total for Question 2 is 7 marks)

---

3. Work out an estimate for the value of  $\frac{17 \times 8.59}{0.31}$

.....  
(3)

(Total for Question 3 is 3 marks)

---

4. Write 375 as a product of its prime factors.

.....  
(Total for Question 4 is 2 marks)

---

5. Solve the following equations.

a)  $3x - 1 = 26$

(2)

b)  $4(x - 2) + 3(x + 5) = 28$

(4)

c)  $\frac{x}{5} + \frac{x+3}{4} = 2$

(3)

d) I am currently five times the age I was 12 years ago. By forming an equation or otherwise, find out how old I am at the moment.

(2)

**(Total for Question 5 is 11 marks)**

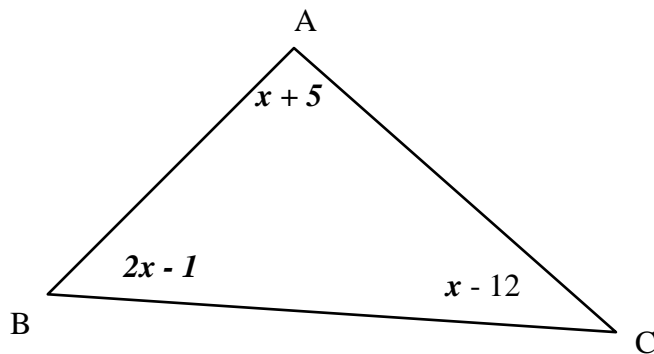
6. Five numbers have a mode of 7, a median of 8, a mean of 8.2 and a range of 3  
What are the five numbers ?

(3)

(Total for Question 6 is 3 marks)

---

7. By considering the triangle below, find the value of  $x$ .



(3)

.....  
(Total for Question 7 is 3 marks)

---

8. What is 5% of 60 plus 20% of 35 plus 30% of 140 subtract 50% of 30 ?

.....  
(Total for Question 8 is 3 marks)

---

9. Expand and simplify  $3(a - 2b) - 4(2a - 4b)$

.....  
(3)  
(Total for Question 9 is 3 marks)

---

**10.** Solve the simultaneous equations

$$5x + 2y = 5$$

$$4x - 3y = -19$$

$x = \dots\dots\dots, y = \dots\dots\dots$

**(Total for Question 10 is 4 marks)**

---

**11.** Two cubical dice each have faces numbered 0, 1, 2, 3, 4, 5. When both dice are thrown what is the probability that the total score is a prime number ?

**(Total for Question 11 is 4 marks)**

---

**12.**  $y = 3x^2 - ab$

$$b = -3$$

$$a = 4$$

$$x = 2$$

(a) Work out the value of  $y$ .

.....  
**(3)**

**(Total for Question 12 is 3 marks)**

---

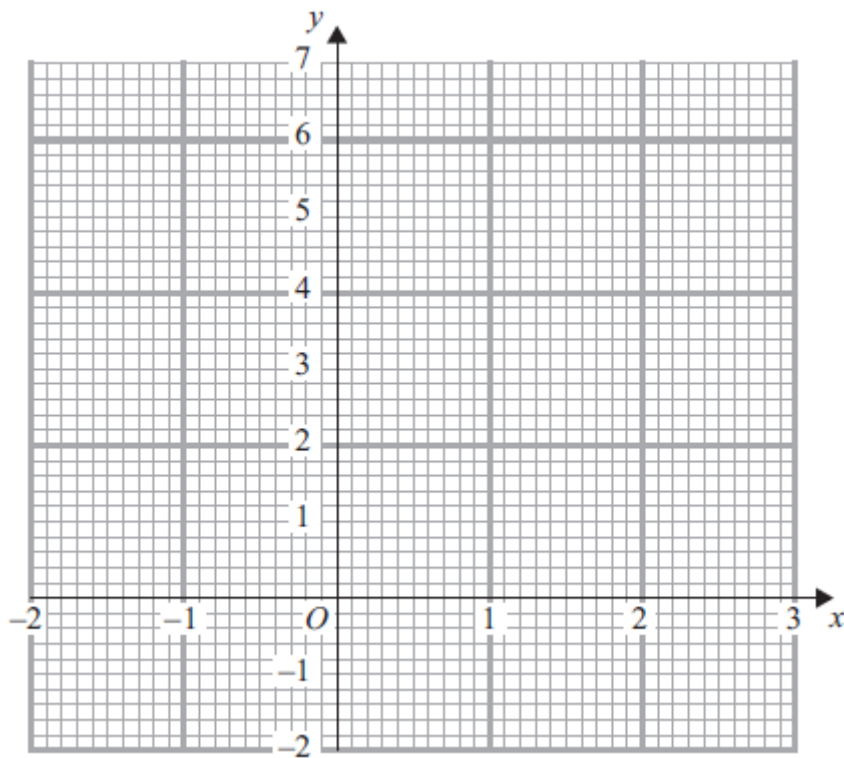


13. (a) Complete the table of values for  $3x - 2y = 2$

$x$	0	1	2	3	4	5
$y$	1		2			

(2)

(b) On the grid, draw the graph of  $3x + 2y = 7$



(2)

(Total for Question 13 is 4 marks)

14.  $-2 < n \leq 5$   
 $n$  is an integer.

(a) Write down all the possible values of  $n$ .

.....  
(2)

(b) Solve the inequality  $6x - 4 > 17$

.....  
(2)

(Total for Question 14 is 4 marks)

---

15. (a) Simplify  $m^{-3} \times m^7$

.....  
(1)

(b) Simplify  $\frac{p^6}{p^{-5}}$

.....  
(1)

(Total for Question 15 is 2 marks)

---

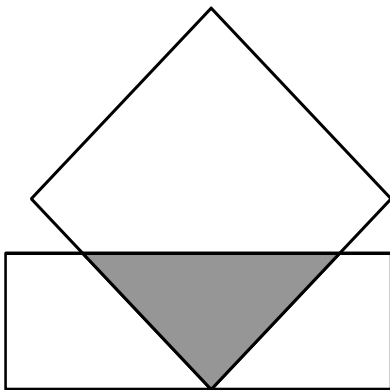
16. If  $ab$  is a two digit number, then its value will be  $10a + b$ . If the two digits are reversed, its value will become  $10b + a$ . A two digit number has its digits reversed to make a second, larger, number. The difference between these two numbers is 36 and they add together to make 110. What was the original number ?

.....  
(3)

(Total for Question 16 is 3 marks)

---

17. The diagram shows a  $2 \times 2$  square and a  $3 \times 1$  rectangle. One vertex of the square lies on a side of the rectangle. The sides of the rectangle are parallel to the diagonals of the square. What is the area of the shaded triangle ?



.....  
(3)

(Total for Question 17 is 3 marks)

---

END OF PAPER