

Class:	Candidate Name:	Candidate Index Number:
--------	-----------------	-------------------------



**SHUQUN SECONDARY SCHOOL**  
**2011 End-of-Year Examination**  
**Secondary 1 Express**

**MATHEMATICS**

Paper 1

10 October 2011

Candidates answer on the Question Paper

**1 Hour 30 Minutes**

**INSTRUCTIONS TO CANDIDATES**

Write your name, class and class index number in the spaces at the top of this page and all the work you hand in.

Write in blue or black pen.

You may use a pencil for any diagrams or graphs.

Do not use staples, paper clips highlighters, glue or correction fluid.

Answer **all** questions.

If working is needed for any question, it must be shown with the answer.  
Omission of essential working will result in loss of marks.

You are expected to use a scientific calculator to evaluate explicit numerical expressions.

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 degrees 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 of marks for this paper is **50**.

This question paper consists of **10** printed pages.

[Turn over

359

Answer **all** questions.

1. Evaluate

a)  $\frac{\sqrt[3]{128-3}}{5^3}$ ,

b)  $6^2 + \sqrt{9} \times 1.6$ .

Ans: a) \_\_\_\_\_ [1]

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

---

2. Write down the next term for each sequence.

a) 1, 5, 11, 19, 29, \_\_\_\_\_,

b) -1, -4, -9, -16, \_\_\_\_\_.

Ans: a) \_\_\_\_\_ [1]

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

---

3. If  $p : q = 5 : 3$  and  $p : r = 2 : 7$ , find  $p : q : r$ .

Ans: \_\_\_\_\_ [2]

---

4. Arrange the following numbers in ascending order.

a) 9, 7, -5, -7

b)  $\frac{21}{50}$ , 0.4, 0.44, 47%

Ans: a) \_\_\_\_\_ [1]

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

5. The temperature in a town in a day at noon was  $37^{\circ}\text{C}$ . The temperature drops to  $-3^{\circ}\text{C}$  at midnight. Find

a) the difference between the two temperatures,

b) the temperature which is exactly half-way between the two temperatures.

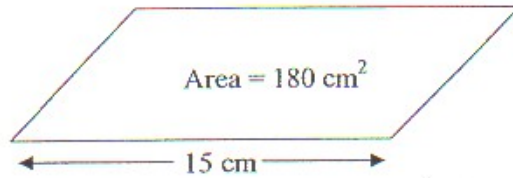
Ans: a) \_\_\_\_\_  $^{\circ}\text{C}$  [1]

b) \_\_\_\_\_  $^{\circ}\text{C}$  [1]

6. Sharafi worked part time in a fast food restaurant and was paid \$22.80 for 4 hours. During the December holidays, he worked 128 hours. How much did he earn during the December holidays?

Ans: \$ \_\_\_\_\_ [2] 361

7. The diagram below shows a parallelogram with an area of  $180 \text{ cm}^2$  and base  $15 \text{ cm}$  long. Calculate the height of the parallelogram.



Ans: \_\_\_\_\_ cm [2]

- 
8. A gift shop uses 1155 boxes of chocolates, 462 bottles of wine and 693 tins of cookies to make as many gift hampers as possible. Each hamper has the same number of boxes of chocolates, the same number of bottles of wine and the same number of tins of cookies. What is the greatest number of gift hampers that can be made?

Ans: \_\_\_\_\_ [3]

9. A regular polygon has  $n$  sides. The size of each interior angle is seven times the size of each exterior angle.
- Find the size of each exterior angle.
  - Calculate the value of  $n$ .

Ans: a) \_\_\_\_\_ [1]

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

10. Given that  $-5 \leq x \leq -2$  and  $1 \leq y \leq 4$ , find
- the greatest possible value of  $x + y$ ,
  - the greatest possible value of  $(x - y)^2$ ,
  - the smallest possible value of  $\frac{x}{y}$ .

Ans: a) \_\_\_\_\_ [1]

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

c) \_\_\_\_\_ [1]

363

11. Factorise

a)  $2r^2 + 6rh$ ,

b)  $ac - 3c + 2ab - 6b$ .

Ans: a) \_\_\_\_\_ [1]

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

---

12. Solve the inequalities

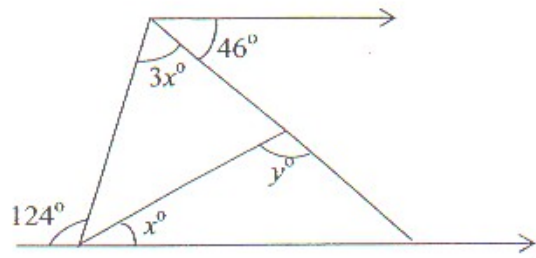
a)  $3y \leq 14$ ,

b)  $\frac{2}{3}x - 3 > \frac{1}{3}x - \frac{7}{10}$ .

Ans: a) \_\_\_\_\_ [1]

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

13. Calculate the values of  $x$  and  $y$  in the following diagram.



Ans: a)  $x =$  \_\_\_\_\_ [2]

b)  $y =$  \_\_\_\_\_ [2]

14. Solve the following equations

a)  $2x - 7 = -2(x - 2)$ .

b)  $3(4a + 5) = 0.5a$ .

Ans: a)  $x =$  \_\_\_\_\_ [2]

b)  $a =$  \_\_\_\_\_ [2]

365

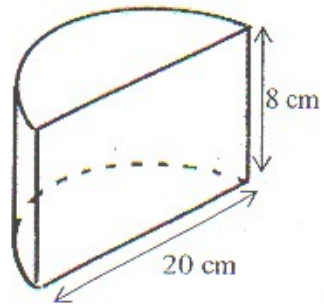
15. The following is a receipt of Sean's dinner at Lay Garden's Restaurant.
- Calculate the amount of service charge.
  - The GST is taxed on the sum of (I) and (II) of the receipt. Calculate the amount of GST incurred.
  - Hence, find the Grand Total which Sean has to pay.

<b>Lay Garden's Restaurant</b>	
<u>Items</u>	<u>Price</u>
1 Fish and Chips	\$19.80
1 Fruits Salad	\$8.90
1 Cola drink	\$2.50
Total	\$31.20 <b>(I)</b>
10% Service Charge	..... <b>(II)</b>
7 % GST	.....
Grand Total	.....

Ans: a) \$ \_\_\_\_\_ [1]  
 b) \$ \_\_\_\_\_ [2]  
 c) \$ \_\_\_\_\_ [1]



16. The following diagram shows a solid that takes a shape of half a cylinder of diameter 20 cm and height 8 cm. Calculate
- the volume of the solid,
  - the total surface area of the solid.



Ans: a) \_\_\_\_\_  $\text{cm}^3$  [2]

b) \_\_\_\_\_  $\text{cm}^2$  [2]

3(7)

17. In the space below,

a) construct a triangle  $PQR$  in which  $PQ = 8$  cm,  $PR = 10$  cm and

$$\angle QPR = 75^\circ,$$

[3]

b) construct the perpendicular bisector of  $PQ$ ,

[1]

c) construct the angle bisector of  $\angle PQR$ .

[1]

---

**End of Paper**

## Answers

1a.	0.04
b.	40.8
2a.	41
b.	-25
3.	10 : 6 : 35
4a.	-7, -5, 7, 9
b.	21/50, 0.44, 0.4, 47%
5a.	40
b.	17
6.	\$729.60
7.	12
8.	231
9a.	22.5°
b.	16
10a.	2
b.	81
c.	-5
11a.	$2r(r + 3h)$
b.	$(a-3)(c+2b)$
12a.	4.67
b.	6.9
13a.	26
b.	108
14a.	2.75
b.	-1.30
15a.	\$3.12
b.	\$2.40
c.	\$36.72
16a.	1256.8
b.	725.56

