

**St. Stephen's Girls' College**  
**Mid-Year Examination 2015-2016**

**Form 1**  
**177 students**

**MATHEMATICS**  
**Time Allowed : 1 hour**

**VC, LHK, KAL, CYN**

**Name:** \_\_\_\_\_ (      )

**Class:** \_\_\_\_\_ **Division:** \_\_\_\_\_

*Instructions:*

1. This paper consists of *TWO* sections, A and B.
2. Answer *ALL* questions in the spaces provided in this **Question-Answer Paper**.

For Markers' Use Only	
1 – 21.	(58)
22.	(3)
23.	(6)
24.	(6)
25.	(3)
26.	(6)
27.	(6)
28.	(6)
29.	(6)

**Section A (58%)**

*All rough work should be done on the rough work paper provided, but will not be marked.*

1. Arrange the following numbers in ascending order.

$$-\frac{1}{5}, \frac{2}{3}, -0.5, 0.6, \frac{5}{7}$$

2. Evaluate  $(-1)^{2016} + (-1)^{2016}$ .

3. Find the L.C.M. of  $2 \times 3^2 \times 5$  and  $2^2 \times 7$ .

4. Mr. Lee bought 2 kg of flour. He used  $\frac{5}{8}$  and  $\frac{1}{4}$  of the flour to make a cake and some cookies respectively. What is the weight of flour left?

5. Represent the following word phrase by an algebraic expression:

Subtract  $a$  from  $b$ , and then divide the difference by the product of  $c$  squared and half of  $d$ .

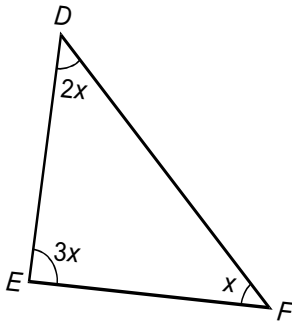
6. For the algebraic expression  $-3 \times a \times a - 5 \times a - 1 + a$ , write down
- (a) the number of terms,
  - (b) a pair of like terms,
  - (c) a constant term.

7. Simplify  $-8x \div 4 \times y + x + 12 \div 3 \times x \times y$ .

	<u>Answers</u>	<u>Marks</u>
1.	_____	2
2.	_____	2
3.	_____	2
4.	_____	3
5.	_____	3
6.		
(a)	_____	1
(b)	_____	1
(c)	_____	1
7.	_____	3
Subtotal:		18

8. Mary has  $p$  dozen pencils. After she gives 7 pencils to her brother, how many pencils does she have? Express your answer in terms of  $p$ .
9. Solve the following equations:  
 (a)  $\frac{2}{3}x - 24 = 2x$   
 (b)  $-5x = 11 - 2(4x - 5)$
10. It is given that  $y = -2 - x^2$ . Find the value of  $y$  when  $x = -4$ .
11. It is given that  $-4$ ,  $-2$  and  $0$  are the solutions of an inequality. Which of the following could be the inequality?  
 $2x + 4 < -4$ ,  $2x + 4 \leq -4$ ,  $2x + 4 > -4$ ,  $2x + 4 \geq -4$
12. Which of the following angle has the **2<sup>nd</sup> greatest value**?  
 $\frac{3}{8}$  of a round angle,  
 $\frac{2}{3}$  of a straight angle,  
 $\frac{5}{3}$  of a right angle.

13. Find  $\angle EDF$  in the following diagram.



14. What percentage of 6 m is 54 cm?
15. If 15% of  $y$  is 12, find the value of  $y$ .
16. The number of students in a school increases from 750 to 800. Find the percentage increase.
17. As compared to last month, the price of a model car increases by 36% this month. If the price of the model car is \$340 this month, what was the price of the model car last month?
18. Betty spent \$1 200 on food and \$800 on transportation last month. She spends 16% less on food and 12% more on transportation this month. What is the percentage change in her total expenditure on food and transportation?

8.	_____	2
9.		
(a)	_____	2
(b)	_____	3
10.	_____	3
11.	_____	2
12.	_____	3
13.	_____	3
14.	_____	2
15.	_____	2
16.	_____	3
17.	_____	3
18.	_____	3

Subtotal:

31



23. Tom and Kevin took part in a competition. 2 marks were awarded for each correct answer and 1 mark was deducted for each wrong answer. Tom answered 12 questions and got 9 correct answers.
- (a) Find Tom's score. (2 marks)
  - (b) Kevin answered 10 questions. His score was 5 marks higher than Tom's. Find the number of correct answers that Kevin got. (4 marks)

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24. A boat sailed along a river 1.5 km/h to the east and 2 km/h to the west. Suppose '+1 km' represents that the boat is 1 km to the east of the starting point.
- (a) If the boat spent 4 hours travelling due east and then 3 hours travelling due west, what is the final position of the boat relative to the starting point? (2 marks)
  - (b) Suppose the boat travelled for 5 hours from the starting point. During the journey, it spent  $x$  hours travelling due east and the rest of the time due west. Let  $d$  km be the final position of the boat relative to the starting point.
    - (i) Express  $d$  in terms of  $x$ .
    - (ii) Write down **two** possible values of  $x$  such that the boat is to the west of the starting point after the whole journey. (4 marks)

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25. The general term of a sequence is  $\frac{128}{2n-1}$ . Is 14 a term of the sequence? Explain your answer.

(3 marks)

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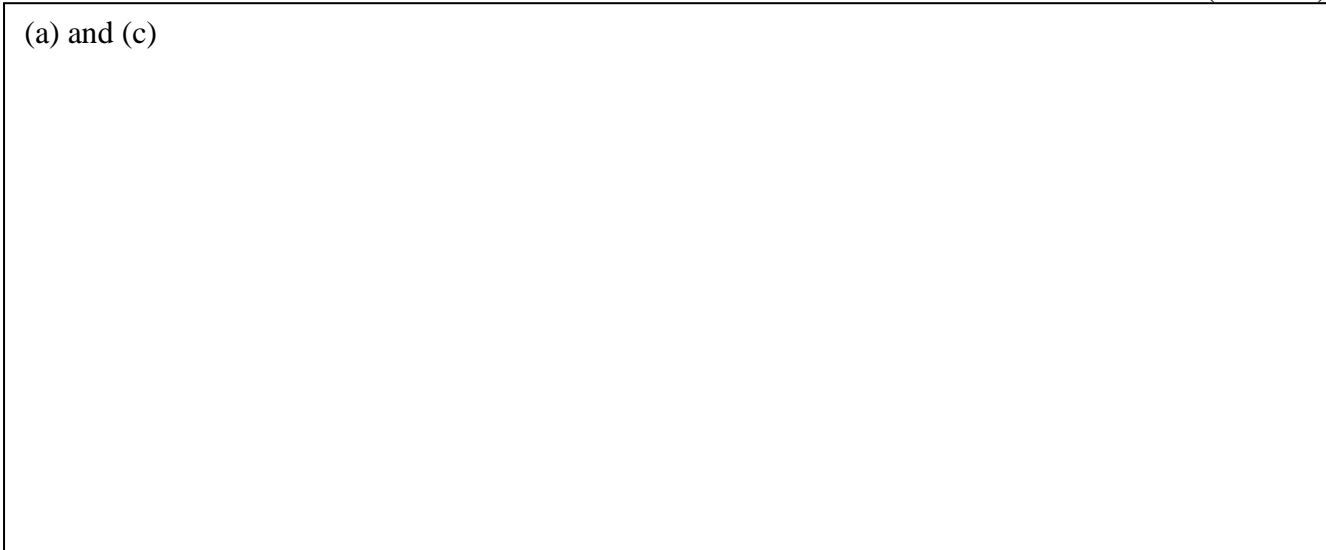
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26. (a) Use a pair of compasses and a ruler to construct  $\Delta PQR$  where  $PQ = 4$  cm and  $PR = QR = 3$  cm in the space below.
- (b) Measure and write down the value of  $\angle PRQ$ .
- (c) Extend  $QR$  to a point  $N$  where  $RN = QR$ . Join  $NP$ .
- (d) (i) According to the lengths of the sides of the triangle, what kind of triangle is  $\Delta PNR$ ?
- (ii) According to the sizes of the angles in the triangle, what kind of triangle is  $\Delta PNQ$ ?

(6 marks)

(a) and (c)



(b)  $\angle PRQ =$  \_\_\_\_\_

(d) (i)  $\Delta PNR$  is \_\_\_\_\_

(ii)  $\Delta PNQ$  is \_\_\_\_\_





29. Stephanie made 500 dolls and planned to sell them in the bazaar. If she sells all the dolls for \$128 each, she will make a profit of 60%.  
(a) Find the total cost of the dolls. (2 marks)  
(b) In the bazaar, the marked price of each doll was \$ $x$ . Stephanie sold 300 dolls at the marked price. The remaining dolls were sold at a discount of 30%. If the overall percentage profit was 65%, find the value of  $x$ . (4 marks)

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