

**Form 1**  
**174 students**

**VC, LHK, KAL, CYN**

**MATHEMATICS**  
**Paper II**  
**Time Allowed: 1 hour**

**Name:** \_\_\_\_\_ **Class No.** \_\_\_\_\_ **Class:** \_\_\_\_\_ **Division:** \_\_\_\_\_

**Please read the following instructions very carefully.**

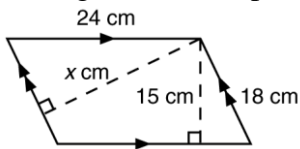
- Answer **ALL** questions in the spaces provided in this **Question-Answer Paper**.
- All rough work should be done on the rough work paper provided, but will not be marked.
- The diagrams in this paper are not necessarily drawn to scale.
- This paper carries 100 marks.

/ 100

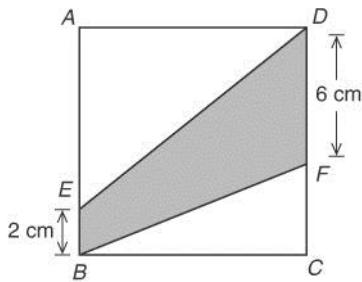
|  | <u>Answers</u> | <u>Marks</u> |
|--|----------------|--------------|
| 1. Evaluate $21 - 3 \left[ 1 - \frac{1}{2} \times (3 - 5) \right]$ .   | 1. _____       | 3            |
| 2. Evaluate $\frac{(-4) + (-6)(-2)}{(-10) - (-8)}$ .   | 2. _____       | 3            |
| 3. Use an algebraic expression to represent 'Subtract the product of 2 and y from x'.  | 3. _____       | 2            |
| 4. Simplify $3x \times x - 12x \div 2 + 9x^2$ .  | 4. _____       | 3            |
| 5. John is $3d$ years old, and his grandfather is $4d$ times as old as him. Express the age of John's grandfather in terms of $d$ .  | 5. _____       | 3            |
| 6. A pack of seed A costs \$60 while a pack of seed B costs \$80. If a farmer uses \$1500 to buy 20 packs of seed, how many packs of seed A does the farmer buy?           | 6. _____       | 3            |
| 7. It is given that the general term of a sequence is $\frac{n^2 + 1}{3}$ . Find the 10th term of the sequence.  | 7. _____       | 2            |
| 8. If 35% of $n$ is 112, find $n$ .  | 8. _____       | 2            |
| 9. In a school, there are 1000 students and 48% of them are boys. If 60% of boys and 45% of girls wear glasses, find the total number of students who do not wear glasses. | 9. _____       | 3            |
| <b>Sub-total:</b>  |                | 24           |

10. There were 160 members in the choir last year. If the number of choir members this year is 120, find the percentage change.
11. A dress marked at \$560 is sold at a discount of 25%. Find the selling price of the dress.
12. The marked price of a doll is 150% higher than its cost price. The doll is sold at a discount of 15% for \$255. Find the cost price of the doll.
13. Estimate the value of  $57.8 \times 2.37$  by front-end method.
14. The price of a box of chocolate is \$49. If Susan has \$1502, estimate the number of boxes of chocolate Susan can buy.
15. Lily bought 18 jars of orange juice. The volume of the orange juice in each jar is 375 mL. She poured all the orange juice into a container of capacity 8000 mL. By rounding up the volume of the orange juice in each jar to the nearest 100 mL, estimate the total volume of orange juice in the container.

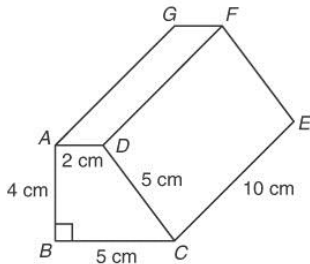
16. The figure shows a parallelogram. Find the value of  $x$ .



17. In the figure,  $ABCD$  is a square. If the area of the trapezium  $EBFD$  is  $40 \text{ cm}^2$ , find the area of the square  $ABCD$ .



18. Find the total surface area of the following prism.

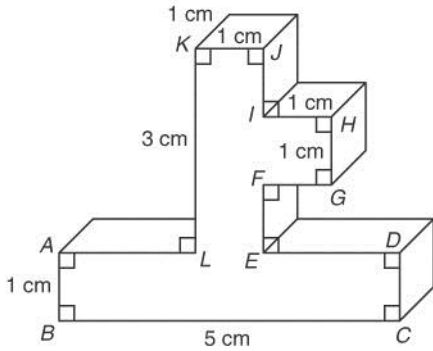


|           |   |
|-----------|---|
| 10. _____ | 2 |
| 11. _____ | 2 |
| 12. _____ | 3 |
| 13. _____ | 2 |
| 14. _____ | 2 |
| 15. _____ | 3 |
| 16. _____ | 2 |
| 17. _____ | 3 |
| 18. _____ | 3 |

**Sub-total:**

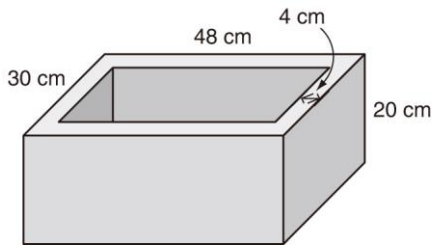
22

19. Find the base area of the following prism.



19. \_\_\_\_\_ 3

20. In the figure, the rectangular container (without a lid) is made of glass of 4 cm thick. Find the volume of the glass required to make the container.



20. \_\_\_\_\_ 3

21. A rectangular tank of length 50 cm and width 20 cm is filled with some water. 100 bricks, each of volume  $4 \text{ cm}^3$ , are put into the water. If all the bricks are totally immersed into the water and no water overflows, find the rise in water level.

21. \_\_\_\_\_ 3

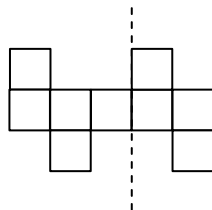
22. Which of the following points lie on the  $x$ -axis?  
 $A(0, 3)$ ,  $B(2, 0)$ ,  $C(3, -2)$ ,  $D(-4, 0)$ ,  $E(0, -5)$ ,  $F(0, 0)$

22. \_\_\_\_\_ 3

23.  $A(3, 20^\circ)$ ,  $B(5, 80^\circ)$  and  $C(5, 110^\circ)$  are three points in a polar coordinate plane with the pole  $O$ .  
 (a) Write down the relationship between the lengths of  $OB$  and  $OC$ .  
 (b) Find  $\angle AOB$ .  
 (c) Which angle is a right angle?

23. \_\_\_\_\_ 3  
 (a) \_\_\_\_\_ 1  
 (b) \_\_\_\_\_ 1  
 (c) \_\_\_\_\_ 2

24. What is the least number of square(s) to be added to the figure so that the dotted line becomes the axis of symmetry of the whole figure?



24. \_\_\_\_\_ 2

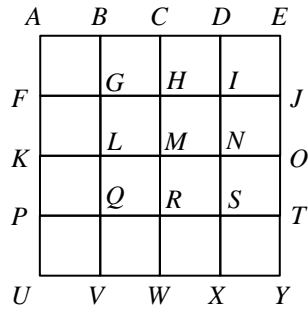
25. Given that  $C$  is reflected in the  $y$ -axis to a point  $D(-3, -4)$ , find the coordinates of  $C$ .

25. \_\_\_\_\_ 2

**Sub-total:**

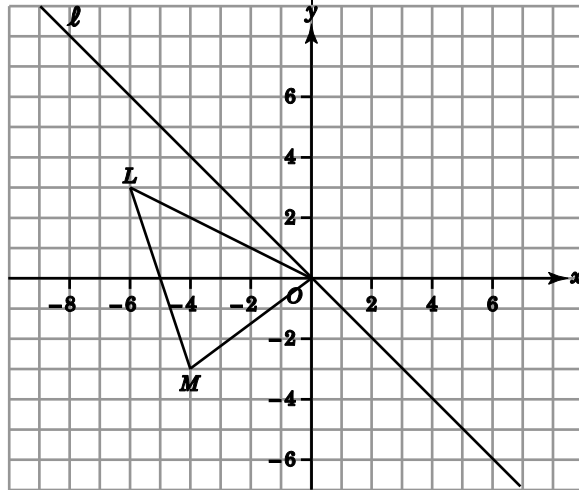
20

26.

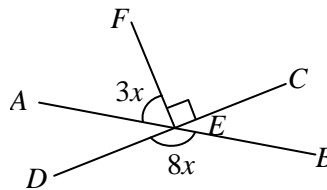


The above figure is formed by 16 identical squares. If the rectangle  $ABLK$  is rotated anticlockwise about the point  $M$  through  $90^\circ$ , write down the name of the rectangle that represents its image.

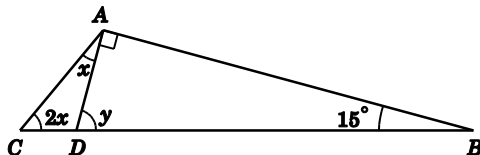
27. The figure shows  $\triangle LMO$  in a rectangular coordinate plane. It is reflected in the straight line  $\ell$  to  $\triangle L'M'O'$ . Draw the image  $\triangle L'M'O'$  in the figure.



28. In the figure,  $AEB$  and  $CED$  are straight lines. Find  $x$ .



29. In the figure,  $CDB$  is a straight line. Find the unknowns.



26. \_\_\_\_\_

3

27.

3

28. \_\_\_\_\_

2

29.  $x =$  \_\_\_\_\_

2

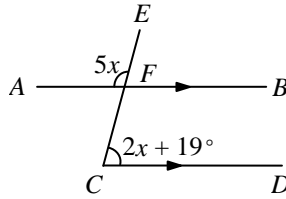
$y =$  \_\_\_\_\_

2

**Sub-total:**

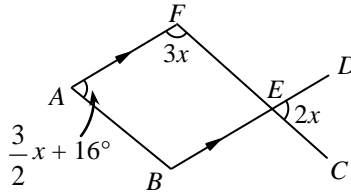
12

30. In the figure,  $AFB$  and  $EFC$  are straight lines. Find  $x$ .

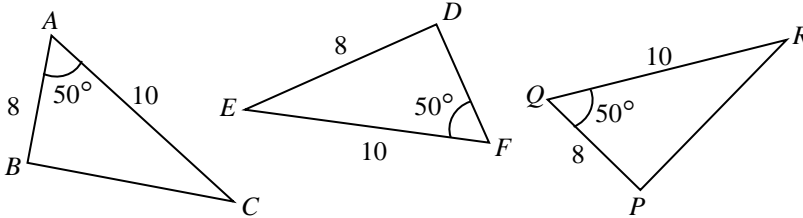


31. In the figure,  $BED$  and  $CEF$  are straight lines. Determine whether the following statements are true or false. Circle the correct answers.

- (a)  $x = 36^\circ$
- (b)  $AB \parallel FC$
- (c)  $\angle FEB = 70^\circ$

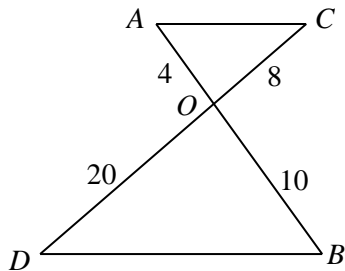


32. Determine which two of the following triangles are congruent and give reasons.

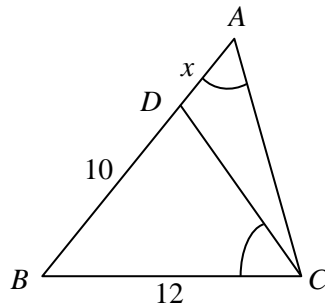


33. It is given that  $\triangle ABC \cong \triangle DFE$ . If  $\angle A = 52^\circ$  and  $\angle C = 46^\circ$ , find  $\angle F$ .

34. In the figure,  $AB$  and  $CD$  intersect at  $O$ . Name a pair of similar triangles and give reasons.



35. In the figure,  $ADB$  is a straight line and  $\angle BAC = \angle BCD$ . It is given that  $AD = x$ ,  $BD = 10$  and  $BC = 12$ . Find the value of  $x$ .



30. \_\_\_\_\_ 2

31. \_\_\_\_\_ 1

(a) true / false 1

(b) true / false 1

(c) true / false 1

32. \_\_\_\_\_ 2

\_\_\_\_\_  $\cong$  \_\_\_\_\_

( \_\_\_\_\_ ) 1

33. \_\_\_\_\_ 2

34. \_\_\_\_\_ 1

\_\_\_\_\_  $\sim$  \_\_\_\_\_

( \_\_\_\_\_ ) 1

35. \_\_\_\_\_ 3

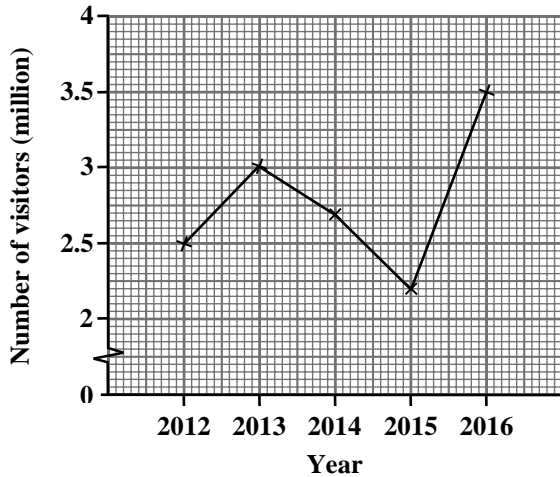
Sub-total:

15

36. Determine whether the following data are discrete or continuous. Circle the correct answers.
- (a) The numbers of family members of the students in a school
  - (b) The body temperatures of the students in a school

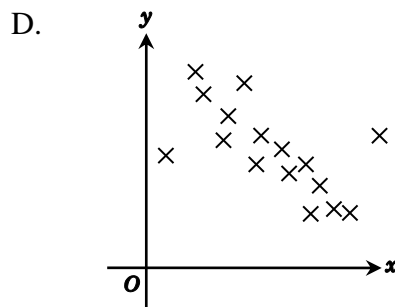
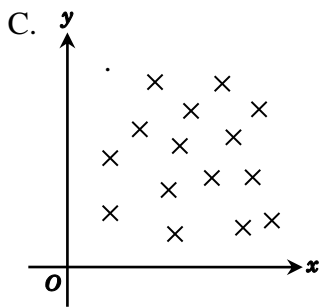
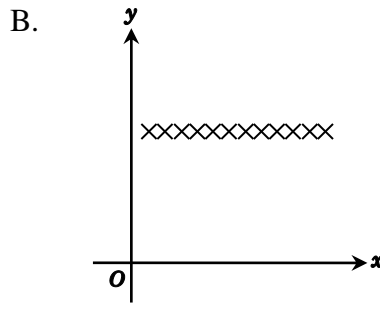
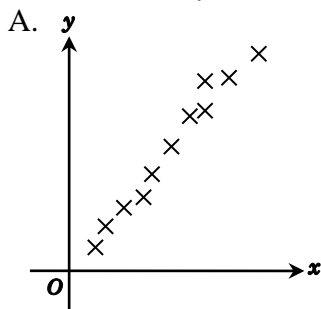
37. The broken line graph below shows the number of visitors of a city from 2012 to 2016.

**Number of visitors of a city from 2012 to 2016**



Determine whether the following statements are true or false. Circle the correct answers.

- (a) The total number of visitors to the city from 2012 to 2016 is 13.9 million.
  - (b) The decrease in the number of visitors was the greatest from 2013 to 2014.
  - (c) The number of visitors in 2014 was 10% lower than that in 2013.
38. It is given that  $y$  increases when  $x$  increases. Which of the following scatter diagrams may represent the relationship between  $x$  and  $y$ ?



36.

- (a) discrete / continuous
- (b) discrete / continuous

1  
1

37.

- (a) true / false
- (b) true / false
- (c) true / false

1  
1  
1

38. \_\_\_\_\_

2

**Sub-total:**

7