St. Stephen's Girls' College
Final Examination 2017-2018

Form 1   **VC, LHK, KAL, LL, CYN**
179 students

MATHEMATICS
Paper II
Time Allowed: 1 hour

Name: _____ Class No. _____ Class: _____ Division: _____

**Please read the following <u>instructions</u> 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.*

Marks:
/ 100

	Answers	**Marks**

1. Evaluate $\dfrac{-4-6}{-2-(-3)}$.

1. _____   3

2. Subtract 7 from 3, and then multiply the difference by the cube of 2. Find the product.

2. _____   3

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

    (a) $(-x)^2 = -x^2$

    (b) $-3(a+b) = -3b - 3a$

    (c) $2a^2 + a = 2a^3$

3.

(a)   True / False   1

(b)   True / False   1

(c)   True / False   1

4. Simplify $4 \times x + 6xy \div 2 - x$.

4. _____   3

5. If the sum of three consecutive even numbers is 144, find the smallest number.

5. _____   3

6. Peter has 3 times as many balloons as Janet. If Peter gives Janet 5 balloons, they have the same number of balloons. How many balloons do they have altogether?

6. _____   3

7. Consider the formula $B = m^2 - 6n$. If $m = -2$ and $n = 6$, find the value of B.

7. _____   2

8. Consider the formula $u = v - gt$. If $u = 27$, $v = 15$ and $g = -3$, find the value of t.

8. _____   3

9. It is given that the result of adding 13 to the product of 5 and x is not greater than 75. Set up an inequality to represent the situation.

9. _____   3

10. Write down a positive integer that can satisfy the following inequality.
    $4a + 32 < 40$

10. _____   2

11. Find the result of 5% of $\dfrac{1}{5}$ kg.

11. _____   2

12. If A is 25% of B, what percentage of A is B?

12. _____   2

Sub-total:

32

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13. Find the percentage decrease if 50 is decreased to 40.

13. _____ | 2

14. If 10% of x is equal to 25% of 16, find the value of x.

14. _____ | 3

15. Peter buys a chair at a 30% discount and saves $810. Find the selling price of the chair.

15. _____ | 3

16. A jacket marked at $900 is sold at a discount of 20%. If the cost price of the jacket is $750, find the profit or loss per cent. (*Circle the correct answer.*)

16.   Profit / Loss | 1

_____ | 2

17. Round up 2.301 to 2 decimal places.

17. _____ | 2

18. Find the volume of the following prism.

18. _____ | 2

12 cm

16 cm

20 cm

8 cm
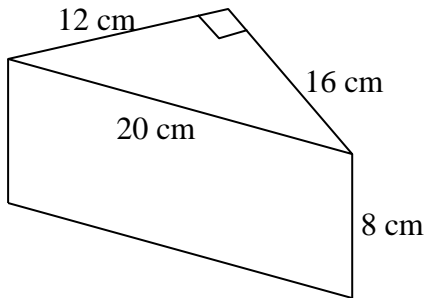
19. In the figure, *ARS* is a straight line and *PQRS* is a parallelogram. If the area of *PQAS* is 20 cm², find the area of $\triangle AQR$.

19. _____ | 3

Q   2 cm   P

A   6 cm   R   S
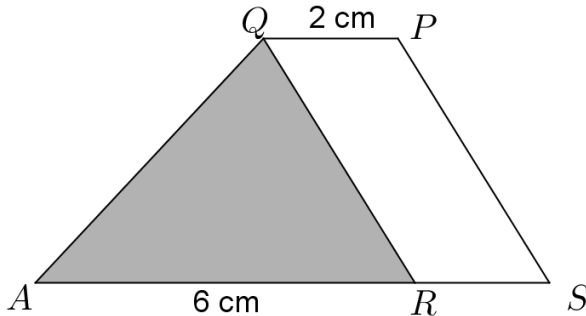
20. The figure shows an open wooden box containing some water. The thickness of the wood is 5 cm. Suppose 200 identical metal chips are put into the water. All the chips are immersed in the water and the water does not overflow. If the rise in water level is 2 cm, find the volume of each metal chip.

20. _____ | 3

90 cm

80 cm

75 cm

Sub-total:

21

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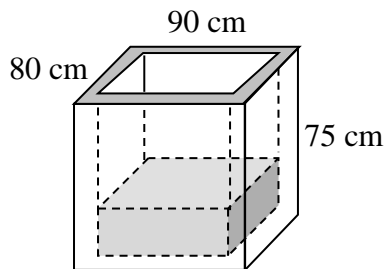
21. Which quadrant does the point $C(-2, 5)$ lie in a rectangular coordinate plane?

21. _____   1

22. The coordinates of A are $(2m + 1, m - 5)$. Find the value of m if A lies on the x-axis.

22. _____   2

23. The figure shows a polygon whose sides are either horizontal or vertical. Find its perimeter.

23. _____   3
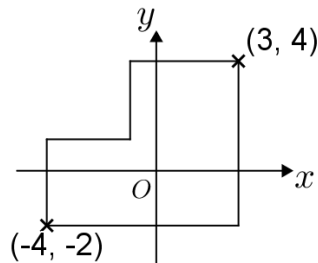
24. The coordinates of the vertices of $\triangle PQR$ are $P(2a, -4)$, $Q(4, -6)$ and $R(-6, -6)$, where a is a constant. Find the area of $\triangle PQR$.

24. _____   3

25. $A(2, 50°)$ is a point in a polar coordinate plane. If B is another point in the same polar coordinate plane such that $AB = 5$, write down two possible coordinates of B.

25. _____   2

    _____   2

26. In a rectangular coordinate plane, a point P is reflected in the x-axis to a point $Q(-2, 5)$. Find the coordinates of P.

26. _____   2

27. In the figure, the regular octagon is divided into eight identical isosceles triangles and four of them are shaded. How many axes of symmetry does the figure have?

27. _____   2

28.

28. _____   2
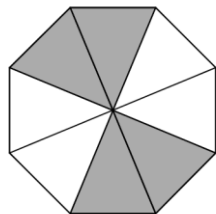
If the plane figure above is rotated anticlockwise about the point O through 270°, which of the following is its image?

A.

B.

C.

D.
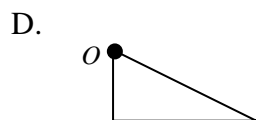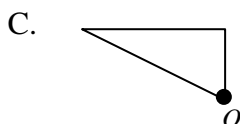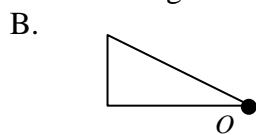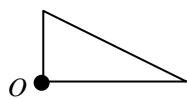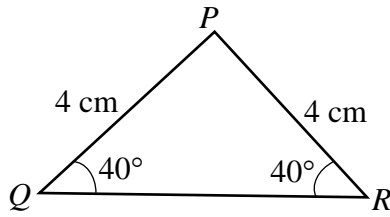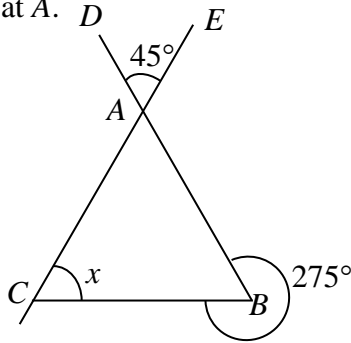

Sub-total: 19

29. In the figure, ΔPQR is
    I.   an isosceles triangle.
    II.   a right-angled triangle.
    III. an acute-angled triangle.

    A. I only
    B. II only
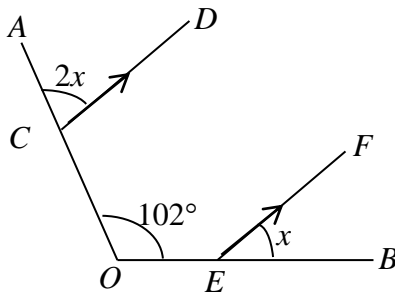   C. I and II only
    D. I and III only

    29. _____   2

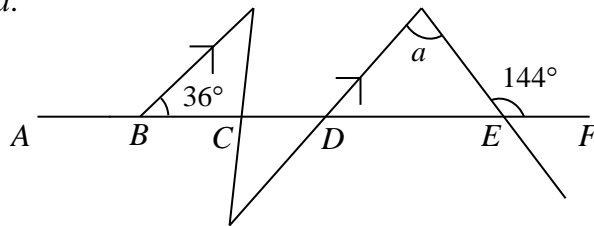30. In the figure, *DB* and *CE* intersect at *A*.
    Find the value of *x*.

    30. _____   3

31. In the figure, *CD // EF*. *ACO* and
    OEB are straight lines. Find the
    value of *x*.

    31. _____   3
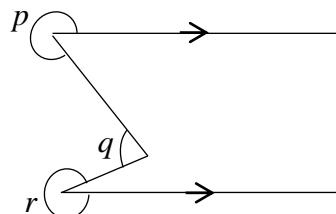
32. In the figure, *ABCDEF* is a straight line.
    Find the value of *a*.

    32. _____   3

33. According to the figure, which of
    the following must be true?

    A. $p+q=r$
    B. $p+q=r+90°$
    C. $p+r=q+540°$
    D. $p+q+r=720°$

    33. _____   3

    Sub-total:

    14

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34. In the figure, $\Delta PQR \cong \Delta XYZ$. Find a and b.
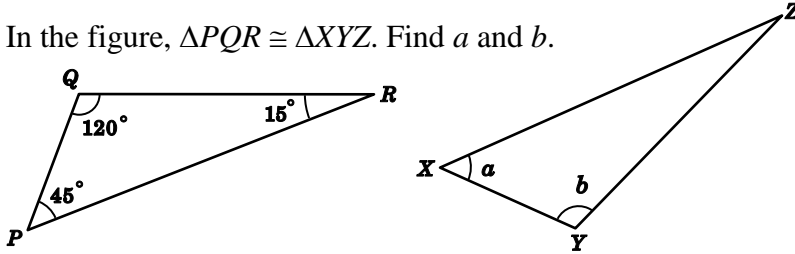
34.	
$a =$ _____	1
$b =$ _____	1

35. Determine which two triangles below must be congruent and give reasons.
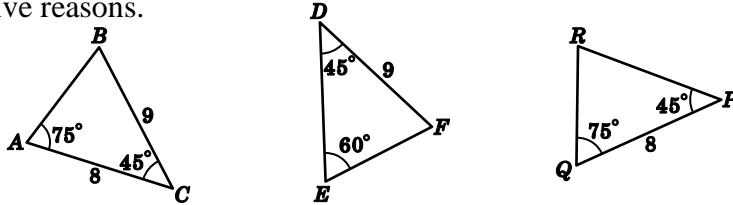
35. _____	1
(_____)	1

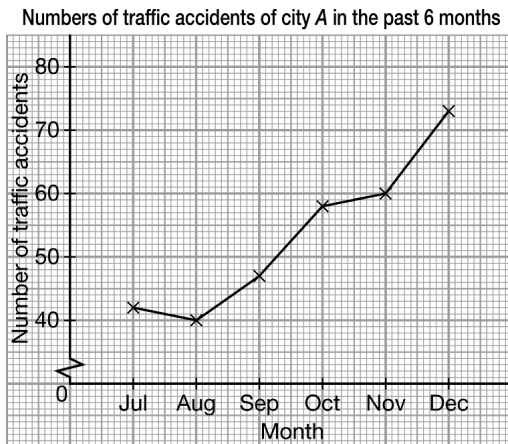36. Name a pair of similar triangles with reasons in each of the following figures.
   (a)

   (b)
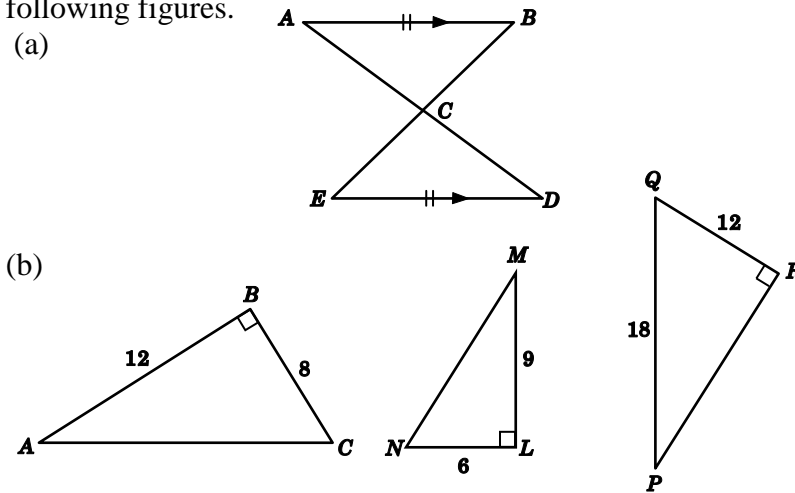
36.	
(a) _____	1
(_____)	1
(b) _____	1
(_____)	1

37. It is given that $\Delta ABC \sim \Delta PQR$. If $AB = 6$, $BC = 10$, $PR = 30$ and $QR = 25$. Find the length of AC.

37. _____	3

38. The following broken line graph shows the number of traffic accidents of city A in the past 6 months.

Numbers of traffic accidents of city *A* in the past 6 months

(a) Find the month with the lowest number of traffic accidents in city A.

(b) What percentage of the number of traffic accidents in November is that in July?

38.	
(a) _____	1
(b) _____	2

Sub-total:	
	14

– END OF PAPER –

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