Royal College - Colombo 07

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Grade 9 – Second Term Test – July 2019

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කාලය : පැය 2
Time : 2 hours

Mathematics

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Name :- ..... Grade : -..... Index number:-.....

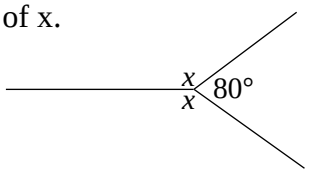
Part I

- **Answer all the questions from 1 to 20 on the paper itself.**
- **Each question carries two marks.**

1. Write 435.8 in scientific notation.

2. Find the selling price of an item worth Rs. 2500 such that vendor earns a profit of 20%.

3. Based on the information given in the figure, find the value of x.



4. Simplify. $\frac{3}{4} - \frac{5}{6} + \frac{1}{3}$

5. Expand and simplify the product of binomial expression $(x - 2)(x + 3)$.

6. Round off 19.97 to the nearest first decimal place.

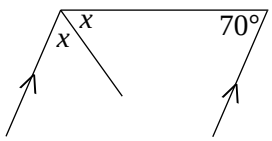
7. Find the 10^{th} term of the number pattern with general term $T_n = 7n - 5$.

8. Find the value of $5m - n$ when $m = 4$ and $n = (-3)$.

9. Make a the subject of the formula $P = \frac{at}{a-t}$

10. The price of 4m of white color cloth is Rs. 1300. If the price of 7m of white color cloth is *x*, construct a direct proportion and find the value of *x*.

11. Find the value of *x*

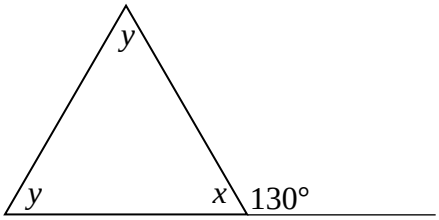


12. Find the capacity of a cuboid shaped tank of length 2m, width 1m and height 1m in litres.

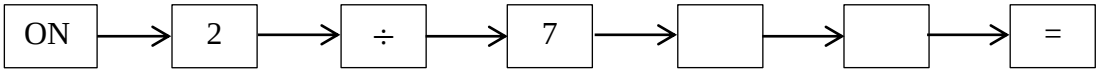
13. Solve. $2x - 3 = 5$

14. Factorize. $a^3 b^3 - ab$

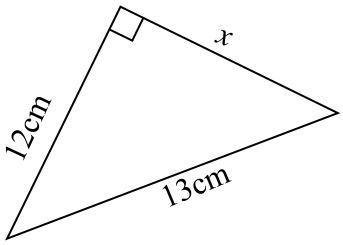
15. Find the value of x and y.



16. The order in which the keys of a calculator need to be pressed to express $\frac{2}{7}$ as a percentage shows below. Fill in the blank cages.



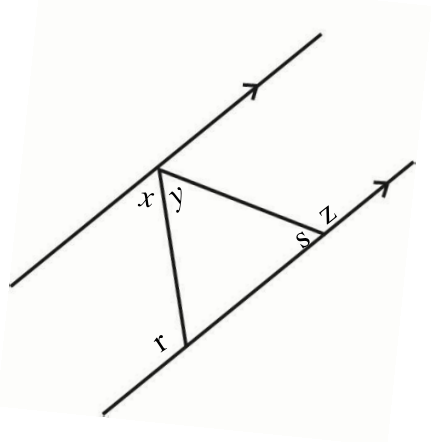
17. Find the value of *x*.



18. Simplify. $11010_{two} - 1101_{two}$

19. After travelling $\frac{5}{8}$ of a journey, the remaining distance to travel was 12km. Find the total distance of the journey.

20. In the given diagram, AB and CD are parallel straight lines.
(i) Write an angle equal to the sum of the magnitudes of angles x + y.
(ii) Write a pair of angle whose sum is 180°.



Part II

- **Answer the first question and four more questions.**
- **First question carries 16 marks and other question carry 11 marks each.**

01. Recollect your memory on subject matters discussed in the lesson percentage.

(a) A manufacturer incurs a cost of Rs. 2800 in making a chair which he intends to sell at Rs. 3500. Determine,

(i) the profit of the manufacturer.

(ii) the profit percentage.

(b) A vendor bought a bicycle at Rs. 16000.Due to a manufacturing defect, he had to sell it with a loss of 15%.

(i) Determine the loss.

(ii) Determine the selling price of the bicycle.

(c) Mr. Karunarathna is a textile businessman. There is a notice displayed in his shop that they offer a discount of 12%.Ruwini went this shop and bought a frock at the price of Rs. 2464.

(i) What is the marked price of the frock?

(ii) Find the discount.

(d) Mr. Bandara is a owner of two story house. His son has gone to a foreign country for higher studies. Mr. Bandara intends selling the house to cover his son's education expenses. For that, he got the service of Mr. Wijesena who is a broker. He usually charges a commission of 3%. If this house was sold at Rs. 15 million,

(i) Find the commission received by Mr. Wijesena.

(ii) Find the money received by Mr. Bandara.

(e) A vendor bought an item, marked its price making a profit of 40% on the cost. He sold the item for Rs. 1545.60, by giving 8% discount on the marked price. What is the buying price of the item?

02. An incomplete table of values prepared to draw the graph of the function $y = x - 2$

x	-2	-1	0	1	2	3
y	-4	-3	……	……	0	1

(i) Fill in the blanks.

(ii) Draw the graph on a suitable coordinate plane.

(iii) Based on the graph, find the value of x when y= $-1\frac{1}{2}$

(iv) Write the equation of the straight line which is parallel to the above line and passing through the point (0, 3).

(v) Does the point (-8, -10) lie on the first graph? Explain your answer with reasons.

03. In the number pattern -5, -2, 1, …

(i) Write the next term.

(ii) Find the common difference.

(iii) Write an expression for the n^{th} term T_n.

(iv) Find the 25^{th} term of the number pattern by using T_n.

(v) Which term is equal to 103?

04. (i) Factorize. $x^2 - 10x - 24$

(ii) Expand and simplify. $(2x - 1)(x+3)$

(iii) Solve. $2(x-1) = 3x - 4$

(iv) Find the value of m and n by solving the pair of simultaneous equation.

$2m + n = 7$

$m - n = 2$

(v) Find the value of F when C = 45 in the formula $C = \frac{5}{9}(F - 32)$.

05. Use only a straight edge with cm/ mm scale and a pair of compasses for the following constructions. Show the construction lines clearly.

(i) Draw a straight line segment PQ where PQ= 6.5cm.

(ii) Draw an arm QR such that $P\widehat{Q}R = 120°$ and QR = 5cm.

(iii) Complete the triangle PQR and construct a line perpendicular to PQ from the point Q.

(iv) Construct the locus of a point which moves equidistant from points Q and R.

(v) Name the point of intersection of line perpendicular in part (iii) and the above locus as O. Construct a circle, taking the point O as the centre and OQ as the radius.

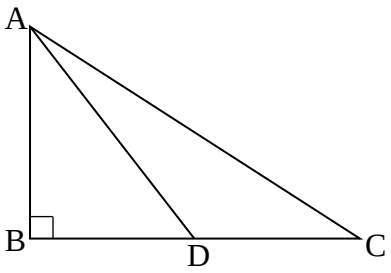
06. (a) Ruwan rides a bicycle along a straight road. The diameter of each wheel of the bicycle is 70cm. (use $\pi = \frac{22}{7}$)

(i) Find the distance the bicycle moves during the period that the wheels complete one full rotation.

(ii) Find the distance the bicycle moves in meters during that the wheels complete 100 rotations.

(b) The ratio between radii of two circles is 2:3. Find the ratio between their circumference.

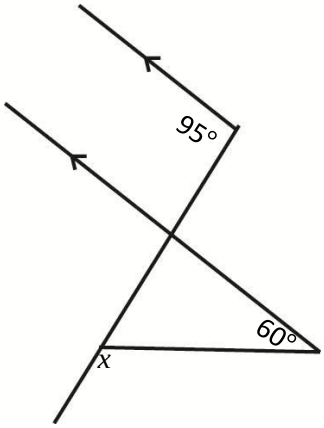
(c) In this figure, if AB = 8cm, AD = 10cm and DC = 9 cm



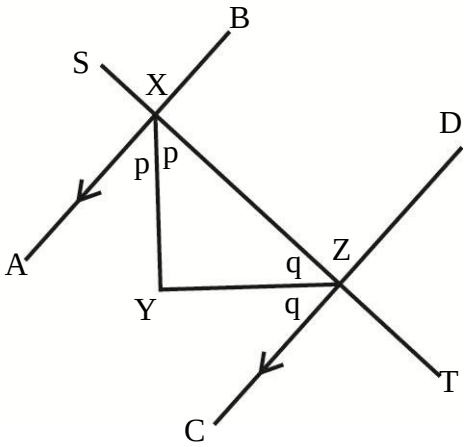
(i) Find length of BD.

(ii) Find length of AC.

07. (a) Find the value of x



(b) Based on the information given, show that $X\hat{Y}Z$ is right angle.



(c) In the triangle ABC,

If $B\hat{A}C - A\hat{B}C = 15°$ and

$A\hat{B}C - A\hat{C}B = 30°$

Find the magnitude of $B\hat{A}C$.