SA1-VIII 9/2013 PAPER-1 17 PAPER-1 17

SUBJECT : MATHEMATICS

Time : 3 hrs. **M.M. : 80**

General Instructions :

(i) All questions are compulsory.

(ii) Read all questions very carefully.

(iii) Questions 1 to 10 carry 1 mark each.

(iv) Questions 11 to 18 carry 2 marks each.

(v) Questions 19 to 28 carry 3 marks each.

(vi) Questions 29 to 34 carry 4 marks each.

Q1. Write two numbers which are their own reciprocals.

Q2. Name the property used -

$\frac{23}{5} \times 0 = 0$

$\frac{74}{65} \times \frac{11}{99} = \frac{2}{3}$

$\left(\frac{2}{3} \times \frac{4}{5}\right) \times \frac{1}{9} = \frac{2}{3} \times \left(\frac{4}{5} \times \frac{1}{9}\right)$

Q3. Solve $8p = 5p + 18$

Q4. Solve $2.1 = \frac{x}{4}$

Q5. "Every rectangle is a square". Is this statement true? Give reason.

Q6. Find the probability of getting a 'Jack' from a well-shuffled deck of 52 playing cards.

Q7. Is the square of 723 even or odd? Give reason.

Q8. What is the units digit of square of 26387?

Q9. The prime factorisation of a number is $2 \times 3 \times 3 \times 3$. Is it a perfect cube? Why or why not?

Q10. A polyhedron has 7 faces and 10 vertices. Find the number of edges.

Q11. Represent on a number line.

Q12. Two numbers are in the ratio 5:7. If their sum is 240, find the numbers.

Q13. A regular polygon has 8 sides. Find the measure of each exterior angle of this polygon.

Q14. Find the square of 31 without direct multiplication.

Q15. Find square root of 64 by repeated subtraction.

Q16. Find the smallest number by which 270 should be divided to make it a perfect cube.

Q17. Find cube root of 2744 by prime factorisation method.

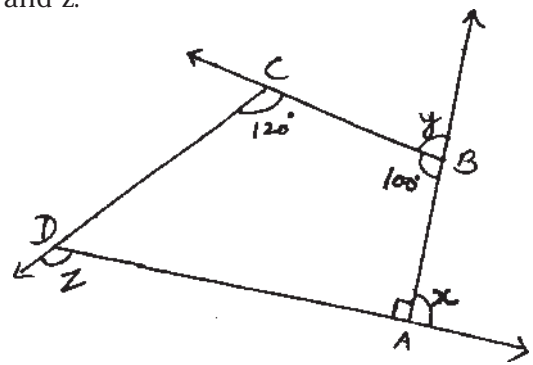
Q18. Find the additive inverse and multiplicative inverse of .

Hence, find the product of these two inverses.

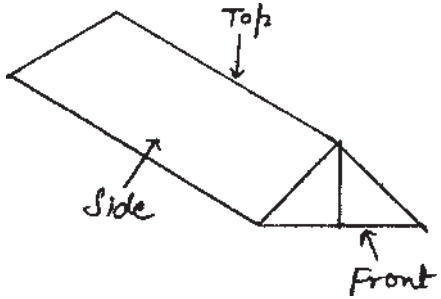
Q19. Solve by using properties :

Q20. The denominator of a rational number is greater than its numerator by 4. If the numerator is increased by 5 and the denominator is increased by 9, then the number obtained is $\frac{1}{2}$. Find the rational number.

Q21. In the given figure; ABCD is a quadrilateral. Find the values of *x*, y and z.



Q22. Draw the front, top and side view of the figure given below.



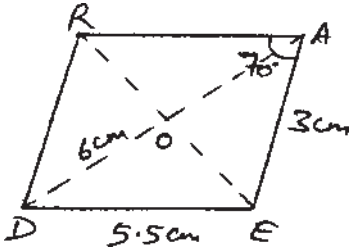
Q23. DEAR is a parallelogram whose diagonals intersect at 0. If AE = 3 cm, DE = 5.5 cm, OD = 6 cm and ∠A = 70°, find the following :

(i) Value of ∠D

(ii) Length of side RD

(iii) Length of diagonal DA

Give reason for each.



Q24. Find a Pythagorean triplet whose one member is 24.

Q25. Find cube root of 17576 by estimation method.

Q26. A box contains 20 slips with the numbers 1 to 20 written on them. (One number on one slip). One slip is chosen from the box. What is the probability of

(i) getting a 1 digit number?

(ii) getting an even number?

(iii) getting a number greater than 100?

Q27. Verify Euler's formula for a hexagonal pyramid.

Q28. Find the smallest square number which is divisible by each of the number 6, 9 and 15.

Q29. The table shows the fruits preferred by a group of people. Draw a pie chart showing the following information :

Fruits	Mango	Apple	Banana	Grapes	Total
No. of people	18	6	3	9	36

Q30. The weights (in kg) of 30 children are :

48, 22, 37, 49, 50, 11, 55, 47, 46, 44, 40, 26, 32, 41, 53, 27, 54, 25, 20, 55, 16, 47, 56, 33, 19, 36, 57, 21, 38, 49.

Using tally marks make a frequency table with intervals as 10-20, 20-30 and so on. Draw a histogram for this data.

Q31. (i) Find 5 rational numbers between and .

(ii) Multiply by reciprocal of .

Q32. Solve and check your result : $5(2x + 3) = 6x + 19$

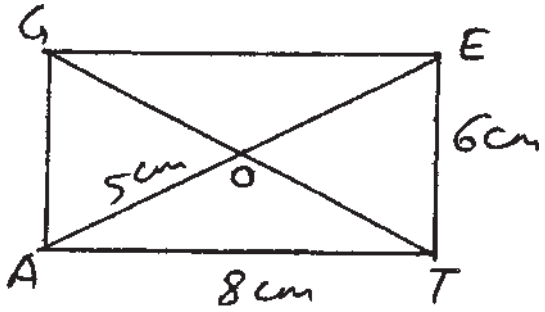
Q33. There are 600 children in a school. For a P.T. drill they have to stand in such a way that the number of rows is equal to the number of columns. How many children would be left out in this arrangement?

Q34. (i) GATE is a rectangle whose diagonals intersect at 'O'. If AT = 8cm, ET = 6cm, OA = 5cm, find the following:

(a) Length of diagonal AE

(b) ∠GAT

Give reason for each.



(ii) A father is 6 times as old as his son. Four years later he will be four times as old as his son, find their present ages.