SA-I (CLASS-VIII) 9/2012

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 one 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 2 numbers which are their own reciprocals.

Q2. By which property is the following true :

$$\frac{2}{9}\times\left(\frac{4}{7}+\frac{1}{5}\right)=\left(\frac{2}{9}\times\frac{4}{7}\right)+\left(\frac{2}{9}\times\frac{1}{5}\right)$$

Q3. Solve and find p : $3p + 4 = 18$

Q4. Is every parallelogram a square? Why or why not?

Q5. Find the probability of getting a red queen from a well-shuffled deck of playing cards.

Q6. Express 144 as the sum of odd numbers.

Q7. Write number of digits in square root of 390625.

Q8. Write the units digit of the cube of following numbers :

(a) 1537 (b) 2259

Q9. Find 'z' if 51z8 is a multiple of 9.

Q10. A polyhedron has 5 faces and 9 edges. Find the number of vertices.

Q11. Represent $\frac{-3}{7}$ on a number line.

Q12. Find $(109)^2$ without direct multiplication.

Q13. Find cube root of 54872 by estimation method.

Q14. How many sides does a regular polygon have if the measure of each exterior angle is 45°?

Q15. Solve and find 'a' : $\frac{4a+3}{7a-1} = \frac{2}{5}$

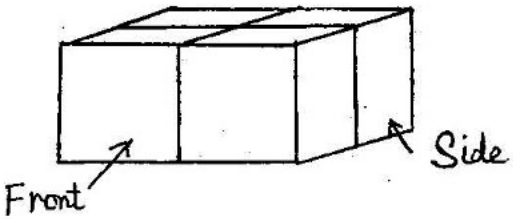
Q16. A die is thrown once. Find the probability of getting

(a) an even number (b) a number less than 6

Q17. Find 'A' and 'B' in the following puzzle :

$$\begin{array}{r} 2\ 3 \\ +\ 9\ A \\ \hline B\ 1\ 8 \end{array}$$

Q18. Draw the top view and front view of the figure :



Q19. Find 5 rational numbers between $\frac{2}{5}$ and $\frac{3}{7}$.

Q20. Find a Pythagorean Triplet whose one member is 28.

Q21. Find cube root of 9261 by prime factorisation method.

Q22. Find the smallest number by which 1600 should be multiplied to make it a perfect cube.

Q23. Verify Euler's formula for a hexagonal prism.

Q24. Cards numbered from 1 to 20 were kept in a box and mixed well. One card is chosen from the box without looking into it. What is the probability of

(a) getting a number between 11 to 18?

(b) getting a 2 digit number?

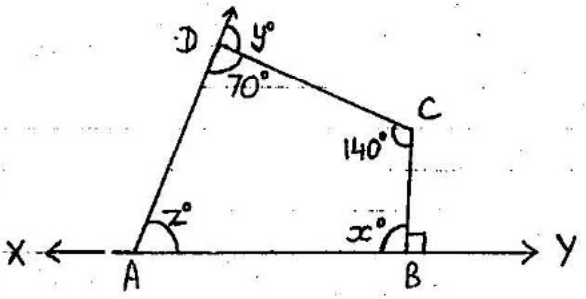
(c) getting an odd number greater than 16?

Q25. If $4x2$ is a multiple of 3, where x is a digit, find the possible values of x.

Q26. Find the additive inverse of $\frac{3}{5}$ and multiplicative inverse of $\frac{9}{2}$. Now find their (a) sum (b) product.

Q27. The sum of three consecutive multiples of 11 is 363. Find these multiples.

Q28. Find $x°$, $y°$ and $z°$ in the following figure :



Q29. Solve and check your result :

$7 + 3(y - 1) = 4 + 8y$

Q30. (i) 1225 plants are to be arranged in a garden such that the number of rows and number of plants in each row are equal. Find the number of rows.

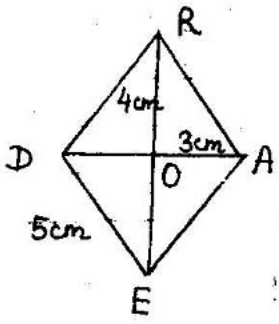
(ii) Find the smallest number that should be subtracted from 9807 to make it a perfect square.

Q31. Draw a pie chart showing the following information :

Choice of fruit from a group of people

Favourite fruit	Mango	Apple	Grapes	Water Melon	Total
No. of People	30	40	25	25	120

Q32. DEAR is a rhombus. If DE = 5cm, OR = 4cm and OA = 3cm, find the following



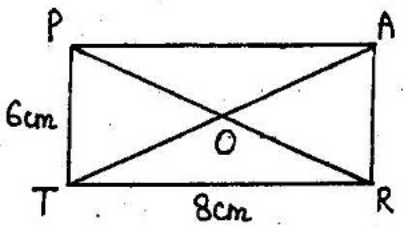
(a) Length of EA

(b) Length of diagonal RE

(c) Measure of ∠ROA

Give reason for each part.

Q33. PART is a rectangle whose diagonals intersect at O. If PT = 6cm, TR = 8cm and PR = 10cm, find the following. Give reason for each part.



(a) Length of AP

(b) Measure of diagonal AT

(c) Measure of ∠ART

Q34. The heights (in cm) of a group of 30 people are as follows. Draw a histogram.

154, 190, 166, 109, 127, 158, 160, 188, 119, 132, 187, 177, 146, 142, 153, 140, 102, 191, 173, 145, 146, 159, 155, 108, 191, 198, 197, 199, 145, 150

(i) Which group has the maximum number of people?

(ii) How many people have height between (120-140) cm?

(Using tally marks make a frequency table with intervals as 100-120, 120-140 and so on)