

CENTRE NO.

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SEAT NO.

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QUESTION PAPER CODE NO.

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HIGH SCHOOL SCHOLARSHIP EXAMINATION, 2003
MATHEMATICS (English)
(Total Marks — 100)

SUNDAY, 16th FEBRUARY 2003]



[TIME : 1-00 P.M. TO 2-00 P.M.

1. If $\frac{1}{5}x - 2 = \frac{3}{10}x - 3$ then $x = ?$

(1) -1

(2) 2

(3) -10

(4) 10

2. If $6 \times 0.03 \div 0.2 = m$ then $m = ?$

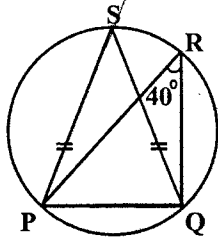
(1) 9

(2) 0.09

(3) 0.9

(4) 3.6

3.



In the adjoining figure $m\angle SPQ = ?$

(1) 70°

(2) 60°

(3) 50°

(4) 40°

4. x is an integer. If $|x| = -x$ then which of the following statement is true?

(1) $x > 0$

(2) $x < 0$

(3) $x = 0$

(4) None of these

5. A shop keeper purchased 50 articles out of which 4% are broken during transportation. Still he got profit equal to the cost price of 6 articles. Find his percent profit?

(1) 12

(2) 12.5

(3) 6

(4) 4

6. Which of the following polynomials is a perfect square?

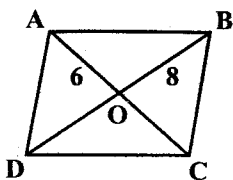
(1) $m^2 + m + 1$

(2) $m^2 - 4m + 16$

(3) $1 - 2m + m^2$

(4) $m^2 - 4$

14.



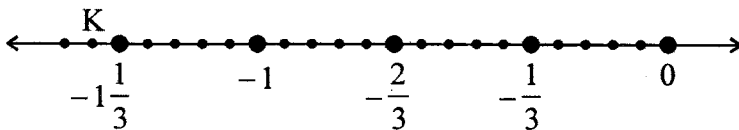
In the adjoining figure $\square ABCD$ is

a rhombus. $l(OA) = 6$ and $l(OB) = 8$.

Find the perimeter of $\square ABCD$.

- (1) 40 (2) 48 (3) 56 (4) 28

15. Observe the number line carefully and write the coordinate of K.



- (1) -1.04 (2) -1.4 (3) $-1\frac{2}{3}$ (4) $-\frac{3}{2}$

16. Select the correct ascending order of the following rational numbers.

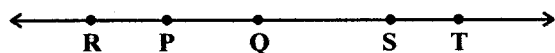
$$\frac{3}{5}, -\frac{5}{8}, -\frac{1}{4}$$

- (1) $-\frac{5}{8}, -\frac{1}{4}, \frac{3}{5}$ (2) $-\frac{5}{8}, \frac{3}{5}, -\frac{1}{4}$ (3) $\frac{3}{5}, -\frac{1}{4}, -\frac{5}{8}$ (4) $\frac{3}{5}, -\frac{5}{8}, -\frac{1}{4}$

17. $(7 + 4A)$ and $(5 + 2B)$ are the digits of the number 98537 at thousandth and tenth places. Then find A and B?

- (1) $-1, 0.5$ (2) $0.25, -1$ (3) $-0.25, -1$ (4) $-\frac{1}{4}, 1$

18.

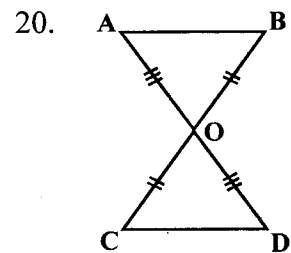


In the adjoining figure what is the intersection set of line RT and ray QT?

- (1) segment RT (2) segment PT (3) ray QR (4) ray QT

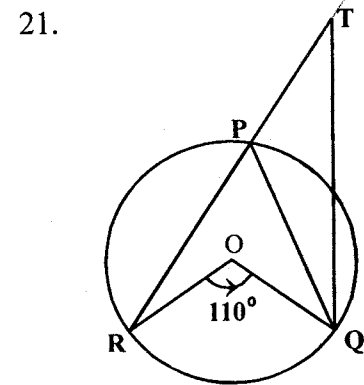
19. If $\left[\left(\frac{5^0 \times 5^5}{3^{-7} \times 3^0} \right)^{\frac{3}{5}} \right]^{\frac{10}{3}}$ what is the simplification of this?

- (1) $\left(\frac{5}{3}\right)^2$ (2) $\frac{(5^2)^5}{(3^2)^7}$ (3) $5^{12} \times 3^{12}$ (4) $5^{10} \times 3^{14}$



In the adjoining figure what is the test of congruency of two triangles?

- (1) S.S.S. test (2) A.S.A. test (3) S.A.S. test (4) Hyposide theorem



In the adjoining figure point O is the centre of the circle. Then $m\angle QPT = ?$

- (1) 55° (2) 125° (3) 70° (4) 110°

22. The age of Prashant is 6 less than thrice of the age of his younger brother. If Prashant is 21 years old, how old is his younger brother?

- (1) 9 years (2) 5 years (3) 13 years (4) 15 years

23. If $\frac{|-50| + |-7| - 19}{|-38|} = 7^m$ then $m = ?$

- (1) 0 (2) 1 (3) -1 (4) Other than these

24. Select the factors of binomial $\frac{a^2}{b^2} - 1$

(1) $\left(\frac{a}{b} + 1\right)^2$

(2) $\left(\frac{a}{b} - 1\right)\left(\frac{a}{b} - 1\right)$

(3) $\left(\frac{a+b}{b}\right)\left(\frac{a-b}{b}\right)$

(4) None of these

25. The dimensions of an iron parallelopiped are 5 cm, 8 cm, 14 cm. If it is melted and parallelopiped of small dimensions 3.5 mm, 10 mm and 20 mm are formed then find the number of small parallelopiped?

(1) 400

(2) 1400

(3) 600

(4) 800

26. If 120 litres of 10% fat milk is mixed with 200 litres of 8% fat milk, find the percentage of fat in the mixture?

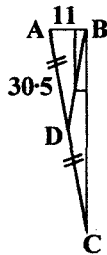
(1) 9

(2) 8.75

(3) 8.50

(4) 8.25

27.



Find $l(BC)$ from the adjoining figure.

(1) 15

(2) 30

(3) 60

(4) 41.5

28. The length of a rectangular garden is 200 m. If the area is 3 Hectare and 20 R, find its breadth?

(1) 80 m

(2) 160 m

(3) 240 m

(4) 320 m

29. Write 9.607 in form of polynomial of powers of 10.

(1) $9 \times 10^0 + 6 \times 10^{-1} + 0 \times 10^{-2} + 7 \times 10^{-3}$

(2) $9 \times 10^0 + 6 \times 10^{-2} + 0 \times 10^{-3} + 7 \times 10^{-1}$

(3) $9 \times 10^0 + 0 \times 10^{-3} + 6 \times 10^{-2} + 7 \times 10^{-1}$

(4) $9 \times 10^0 + 7 \times 10^{-1} + 6 \times 10^{-3} + 0 \times 10^{-3}$

30. The centre of the incircle of a scalene triangle is _____

- (1) equidistant from the three vertices of the triangle.
- (2) equidistant from the three altitudes of the triangle.
- (3) equidistant from the three medians of the triangle.
- (4) equidistant from the three sides of triangle.

31. The G.C.D. and L.C.M. of two numbers is 6 and 72 respectively. If the ratio of the two numbers is 3 : 4, find the numbers.

- (1) 12, 16
- (2) 24, 32
- (3) 18, 24
- (4) 21, 28

32. A bus travels a distance of 126 km in 4 hours and 5 minutes. How much distance in km will it travel in 35 minutes?

- (1) 16
- (2) 18
- (3) 22
- (4) 24

33. Salma purchased a scooter from Robert for Rs. 28,000. In this transaction Dawood bhai received a brokerage 3% from Salma and 4% from Robert. How much amount did Robert get?

- (1) 29,120
- (2) 27,720
- (3) 29,960
- (4) 26,880

34. What is the square root of 110.25?

- (1) 10.5
- (2) 11.5
- (3) 9.05
- (4) None of these

35. If $0.\overline{081}$ and 0.081 are changed to vulgar fractions then what is the difference in their denomination?

- (1) None
- (2) 2
- (3) 1
- (4) Other than these

36. If $\sqrt{12^{3m-2}} = 12^2$ then $m = ?$

- (1) 4
- (2) 2
- (3) 1
- (4) 0

37. $(5x - 1)$ and $(6x + 1)$ are the factors of the polynomial.

- (1) $1 - x + 30x^2$
- (2) $30x^2 + x - 1$
- (3) $30x^2 + 11x - 1$
- (4) $30x^2 - x - 1$

38. If $P = 12$ and $Q = 26$ then find the value of $\sqrt{(2\sqrt{3P})} + 2Q + \sqrt{81}$.

- (1) 13
- (2) 17
- (3) 19
- (4) 21

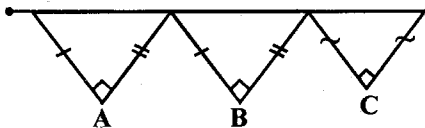
39. By which number the numbers 198, 396 and 270 are completely divisible?

- (1) 18
- (2) 22
- (3) 8
- (4) 4

40. Makarand purchased a school bag of face value Rs. 365. The shopkeeper gave him a rebate of 4%. Then how much money did Makarand pay to the shopkeeper?
- (1) 379.60 (2) 361 (3) 350.40 (4) 350.00
41. Salma and Manohar complete a piece of work together in 20 days. Manohar alone could do the same work in 30 days. Then in how many days Salma alone would take to do the same work?
- (1) 35 (2) 45 (3) 50 (4) 60
42. $(x^3 + x^{-2}) \times (x^2 - 3x) = x^5 + ax^4 - \frac{3}{x} + b$ then find the values of a and b ?
- (1) 3, -1 (2) -3, 1 (3) -3, -1 (4) 3, 1
43. For a certain celebration in a village, the villagers have raised 11 flags each on 11 trees. Due to wind blow 8 flags from 8 trees have fallen and all flags from 3 trees also have fallen. How many flags are remaining on the trees?
- (1) 18 (2) 22 (3) 24 (4) 26
44. Jyoti and Vandana have taken a loan of equal amount at the same rate of simple interest. Jyoti has cleared her loan after two years by paying Rs. 8,680. Vandana also cleared her loan after 5 years by paying an amount of Rs. 11,200. Find the amount of loan of each?
- (1) Rs. 7,000 (2) Rs. 6,000 (3) Rs. 6,500 (4) Rs. 7,500
45. In the following table, which kind of variation is shown?

x	5	4	-2
y	75	48	12

- (1) y varies directly with x (2) y varies inversely with x
 (3) y varies directly with x^2 (4) y varies inversely with x^2
- 46.

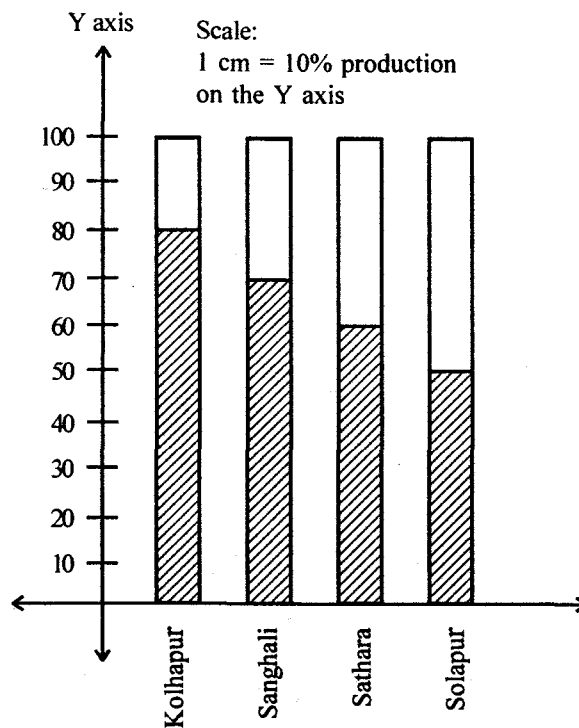


In the above figure flag A and flag C are not congruent to each other because _____

- (1) Their corresponding sides are equal.
 (2) Their corresponding sides and included angle are congruent.
 (3) One side and angles subtended on the side are respectively congruent.
 (4) They do not coincide each other.

47. $(3x + 5)(x - 2) = 17 - x$ then $x =$ _____.
- (1) 3 (2) 5 (3) 2 (4) $\sqrt{3}$
48. Each group from the alternatives represent length of sides of a triangle. State which represent a right angled triangle.
- (1) (9, 40, 41) (2) (20, 25, 30) (3) (8, 15, 17) (4) (6, 8, 10)

Q. 49. to 50. → Observe the graph given below and answer the following questions.



49. How much percent the production of sugarcane in Kolhapur is more than the production in Solapur?
- (1) 50 (2) 40 (3) 30 (4) 20
50. What is the average production of sugarcane of all the four districts?
- (1) 75 (2) 65 (3) 55 (4) 45