HANSRAJ PUBLIC SCHOOL

SECTOR-6, PANCHKULA

CLASS: IX, PERIODIC TEST-1 (2024-25)

SUBJECT- MATHEMATICS

Roll No. 32

Date: 15-07-2023
Time: 1.5hours

Maximum Marks: 40

General Instructions:

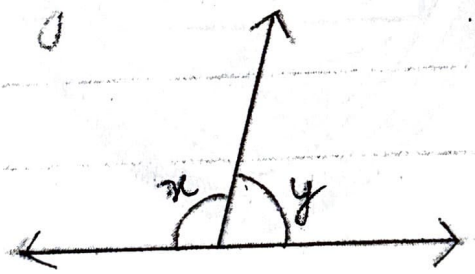
1. This Question Paper has five Sections A to E.
2. Section A has 9 MCQ's carrying 1 mark each.
3. Section B has 4 questions carrying 2 marks each.
4. Section C has 3 questions carrying 3 marks each.
5. Section D has 2 questions carrying 5 marks each.
6. Section E has 1 Case Study based question carrying 4 mark each.
7. All the questions are compulsory.

SECTION A

Q1. The coefficient of y^2 in $(y^2 + 1/y)(y^3 - 5)$ is

a) 2 b) 4 c) -4 d) 5

Q2. If x is greater than y by one-third of a right angle. Find the values of x and y ?



a) 60° ,120 ° b) 45°, 135° c) 75°, 105° d) none of these

Q3. If AB = AC and ∠A = 100 then ∠B is

a) 20 b) 40 c) 80 d) 60

Q4. If a wheel has 8 spokes equally spaced, then measure of the angle between the two spokes is

a) 90 b) 30 c) 45 d) 60

5. If two supplementary angles are in the ratio 3:7, Then the greater angle is

a) 120° b) 126° c) 150° d) 110°

Q6. The value of the polynomial $4x^2 + 5x + 3$ at $x = -1$ is

a) -1 b) 2 c) 0 d) 12

Q7. The value of p for which $x + p$ is a factor of $x^2 + px + 3 - p$ is

a) 1 b) -1 c) 3 d) -3

Q8. If $x + 1/x = 3$, then the value of $x^2 + 1/x^2$ is

a) 9 b) 7 c) 11 d) 8

Q9. In the given question, a statement of Assertion (A) is followed by a statement of Reason (R).

Choose the correct option :

a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)

b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A)

c) Assertion (A) is true but reason (R) is false.

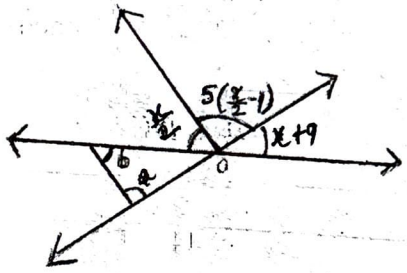
d) Assertion (A) is false but reason ® is true.

Assertion (A) : If $x + p$ is a factor of $x^2 + px - p + 5$, then the value of p is 5.

Reason (R) : If $p(x)$ is a polynomial of degree $n \geq 1$ and a is any real number, then $x + a$ is a factor of $p(x)$, if $p(-a) = 0$

SECTION B

Q10. In the given figure, find $a + b$

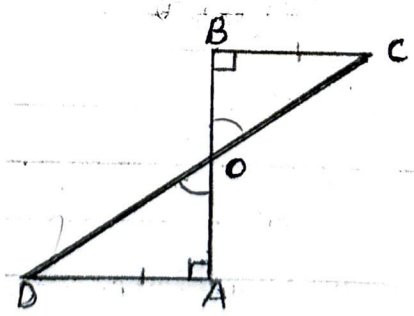


Q11. Find the remainder when $x^3 - 2x^2 + 6x - 2$ is divided by $x - 2$?

Q12. Factorize

$a^3 - 2\sqrt{2}\,b^3$

Q13. AD and BC are equal perpendiculars to a line segment AB. Show that CD bisects AB.

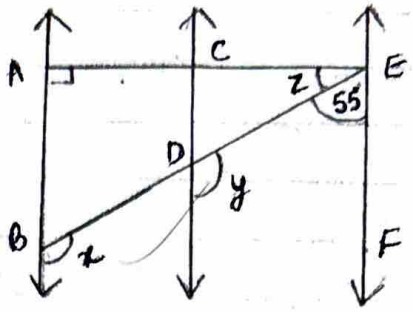


SECTION C

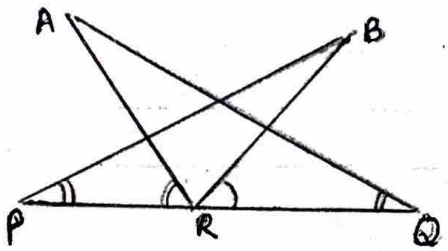
Q14. Factorize :

$x^3 + 3x^2 + 3x - 63$

Q15. AB || CD and CD || EF, Also EA _|_ AB. If ∠BEF = 55. Find the value of x, y and z



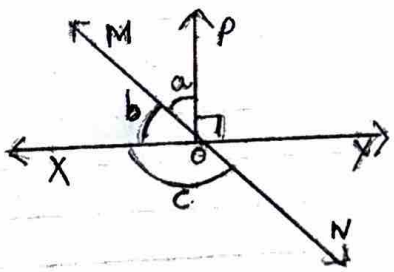
Q16. PR = QR, ∠PRA = ∠QRB and ∠BPR = ∠AQR,
Prove That BP = QA



SECTION D

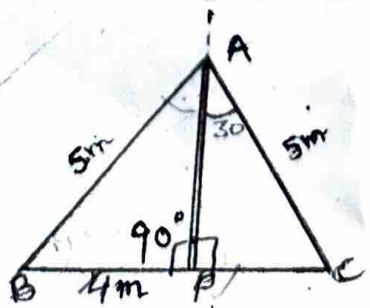
Q17. The polynomials $x^3 + 2x^2 - 5ax - 6$ and $x^3 + ax^3 - 12x - 8$ when divided by $x - 2$ and $x - 3$ leave remainder p and q respectively. If $q - p = 12$. Then find the value of a.

Q18. Lines XY and MN intersect O. If ∠POY = 90 and a:b = 2:3, find c



SECTION E

Q19. Case Study
In a forest, a big tree got broken due to heavy rain and wind. Due to this rain branches AB and AC with length 5 m fell down on the ground. Branch AC makes an angle 30 with the tree AP. The distance of point B from the base of the tree is 4m.



SAS

i) ΔAPC and ΔAPB are congruent by which congruent condition?

ii) What is the length of PC?

iii) What is the value of $\angle BAP$?

iv) What is the value of $\angle ABP$?