

RAMAKRISHNA SENIOR SECONDARY SCHOOL
QUESTION BANK
CLASS – VII
SUBJECT- MATHEMATICS
PERIODIC TEST – 2 (2018 – 19)

SECTION – A (MCQ / FILLUPS / Do as directed Questions)

EACH QUESTION CARRIES 1 MARK EACH)

(7Q X 1 = 7 Marks)

CHAPTER – 4 (EXPONENTS AND POWERS)

Q1. a) Using exponents, write

i) $n \times n \times n \times n \times n \times n$

v) $8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8$

ii) $\frac{3}{4} \times \frac{3}{4} \times \frac{3}{4} \times \frac{3}{4} \times \frac{3}{4}$

vi) $-2 \times -2 \times -2 \times 3 \times 3$

iii) $-4 \times -4 \times -4 \times -4$

vii) $3 \times 3 \times 11 \times 11 \times 11$

iv) $-\frac{1}{5} \times -\frac{1}{5} \times -\frac{1}{5} \times -\frac{1}{5} \times -\frac{1}{5}$

Q1. b) Write the base and exponent of:

i) 7^3 ii) $(\frac{1}{3})^{-5}$ iii) $(\frac{-6}{7})^3$ iv) $(-5)^5$

Q2. Find the value of:

i) 4^4

ii) $(-8)^2$

iii) $(\frac{2}{3})^4$

iv) $(-\frac{3}{7})^3$

v) $(\frac{5}{5})^3$

vi) $(\frac{10}{10})^6$

vii) $(\frac{-3}{-3})^7$

viii) $(\frac{9}{9})^5$

Q3. a) Write the expanded form of :

i) 4^6

ii) $(-7)^3$

iii) $(\frac{1}{3})^5$

iv) $(-\frac{3}{4})^4$

Q3. b) Find the number.

i) $6 \times 10^5 + 5 \times 10^3 + 2 \times 10^2 + 5 \times 10^0$

ii) $9 \times 10^4 + 1 \times 10^3 + 5 \times 10^2 + 7 \times 10^1 + 2 \times 10^0$

iii) $8 \times 10^7 + 5 \times 10^6 + 5 \times 10^5 + 3 \times 10^3 + 8 \times 10^0$

Q4. Express in power notation:

i) 9

ii) -216

iii) 256

iv) -343

v) 125

Q5. Express 4963 in expanded form using exponents.

Q6. Rename the number in expanded form using exponents:

i) 78093

ii) 850000

iii) 154034

iv) 3400600

Q7. a) Write in scientific notation or standard form:

i) 72000

ii) 8000000

iii) 790000000

iv) 8040000000

v) 31408000000

vi) Saturn is about 16000000000km from the earth.

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Q 7. b) Write in usual form :

i) 5.8456×10^5

iii) 2.85960320×10^5

ii) 9.356053×10^3

iv) 8.890056002×10^8

Q8. Express as a rational number.

i) $(\frac{5}{4})^3$

ii) $(-\frac{2}{3})^4$

CHAPTER – 5 (ALGEBRAIC EXPRESSION)

Q9. a) Identify monomials, binomials and trinomials from the following expressions:

i) $2m + 3n$

ii) $a - 5b + 7c$

iii) $\frac{2}{7}a^2$

iv) $5m^2 - 4$

v) $7a^2 + 2b^2 - 4ab$

vi) $\frac{1}{2}x^3 - y + z$

Q9. b) Write different terms of :

i) $4x^2 - x^4$

ii) $4p^2 + 6p^3 + 8p^8$

iii) $m^2n^3 + mn^2 + 4$

iv) $p^2q^4 + pq^2 + 1$

v) 4

Q10. Write the coefficient of x in the following:

i) $2x$

ii) mx

iii) $-2px$

iv) $3xy^2$

v) $-\frac{1}{3}xp$

Q11. Write the coefficient of:

i) x in $-6xy^2$

ii) q in qx^2

iii) a in $\frac{2}{3}a$

iv) x^2y in $-\frac{4}{9}ax^2y$

v) xy in $-4xyz$

vi) z in $-z$

Q12. Identify like terms in each of the following:

i) $a^2, b^2, 2a^2, c^2$

ii) $3xy, yz, 5x, \frac{2}{7}yz$

iii) $8m^2n, m^2p, -m^2n, m^2n^2$

Q13. Write down the degrees of the following polynomials:

i) $4x^2 - x^4$

ii) $4p^2 + 6p^3 + 8p^8$

iii) $m^2n^3 + mn^2 + 4$

iv) $p^2q^4 + pq^2 + 1$

v) 4

Q14. Add $2a + 3b$ and $3a + 4b$.

Q15. Add $8m^2 - 7n^2$ and $-8m^2 + 7n^2$

Q 16. Add :

i) $2x, 3x, x, 5x$

ii) $8m, 3m, 4m, 2m$

iii) $-3b^2, 5b^2$

iv) $-7x, 2x, 4x, -x$

v) $0, y$

vi) $-x, -x, -x$

vii) $4bx^2, -9bx^2$

viii) $\frac{1}{2}ax, \frac{1}{2}ax$

ix) $2y, -5y, 6y, -4y$

x) $-9xy, -xy$

xi) $0, -7b^2y^2$

Q17. Subtract $-7abc$ from $2abc$.

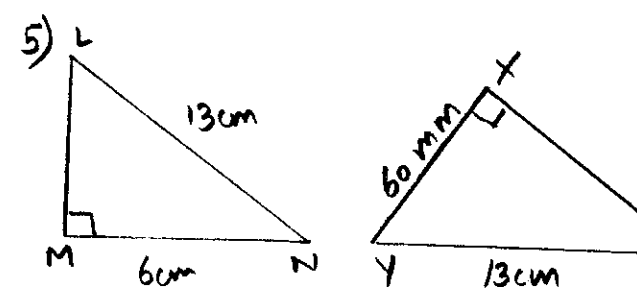
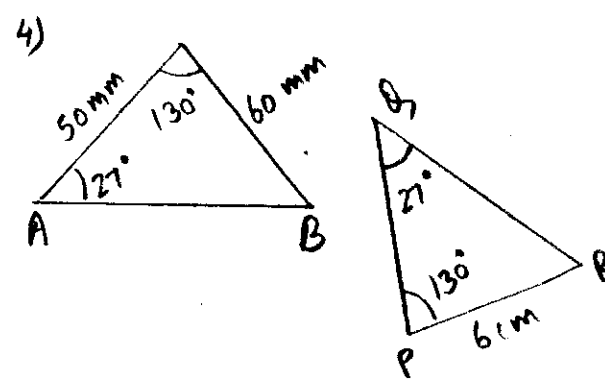
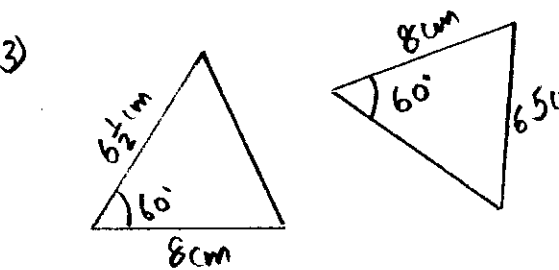
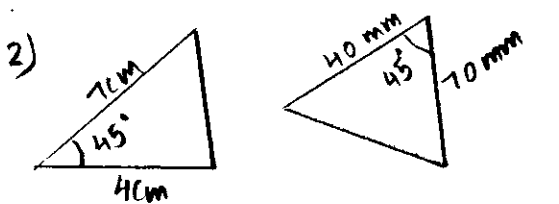
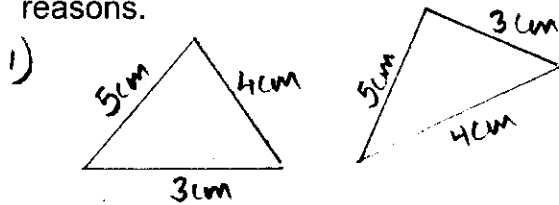
Q18. Subtract $-3xy$ from 0.

Q19. Take away $-4a$ from $5a$.

Q20. Subtract $5n$ from $3m$.

CHAPTER – 10 (CONGRUENCE)

Q21. State whether or not the following pairs of triangles are congruent. If they are, give reasons.



Q22. State the congruency rules in the following cases:

- a) If three sides of one triangle are equal to the corresponding three sides of another triangle, then the triangles are congruent.
- b) If two sides and an included angle of one triangle are congruent to the corresponding two sides and an included angle of another triangle, then the two triangles are congruent.
- c) If two angles and included side of one triangle are equal to the corresponding angles and included side of another triangle, then two triangles are congruent.
- d) If the hypotenuse and one side of a right angled triangle are equal to the hypotenuse and corresponding side of another right angled triangle, then the two triangles are congruent.

SECTION – B

(4Q X 2 = 8 Marks)

EACH QUESTION CARRIES 2 MARKS

CHAPTER – 4 (EXPONENTS AND POWERS)

Q23. Find the value of :

i) $(-37)^2 \times 4^4$

ii) $(5 \times 3)^4$

iii) $(7a)^3$

iv) $(-9x)^4$

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Q24. Express in exponent form :

i) $\frac{25}{49}$

ii) $-\frac{1}{243}$

iii) $\frac{49}{25}$

iv) $-\frac{8}{27}$

v) $\frac{81}{625}$

Q25. Express the prime factorisation of (i) 72 (ii) 300 using exponents.

Q26. Is 2^3 equal to 3^2 ?

Q27. Write the following numbers as a power of 5 :

i) 5

ii) 25

iii) 125

iv) 625

v) 3125

Q28. Simplify :

a) $(3^2)^4$

b) $(5^3)^8$

Q29. Find the value of :

i) 4^0

ii) 3^{8-8}

iii) $3^0 + 4^0 + 5^0$

iv) $(9^0 - 7^0) \times (9 + 7)$

Q30. Express each of the following with single exponent:

i) $(3^2)^2$

ii) $(2^2)^3$

iii) $((-5)^4)^2$

iv) $[(\frac{1}{5})^4]^5$

Q31. Evaluate:

i) $(419)^0$

ii) $(-17)^0$

iii) $(100000)^0$

iv) $[-\frac{5}{7}]^0$

v) $7^0 + 8^0 + 9^0$

vi) $(29^0 - 23^0) \times 16^0$

vii) $(-2)^{3 \times 5 - 4 - 11}$

CHAPTER – 5 (ALGEBRAIC EXPRESSION)

Q32. Add $3a + 5b - 4c$ and $2a - 5b - 4c$

Q33. Add $2x^2 + 4y^2 + 6$; $-x^2 - 5y^2 - 8$ and $-3x^2 - 2y^2 + 4$

Q34. Add:

i) $6a + 4b$; $2a + 3b$

iii) $5t - 1$; $-6t + 4$

ii) $x + 5y$; $3x + y$

iv) $3a + b$; $a - b$

Q35. Add:

i) $2a + 3b + 1$; $4a + 2b + 7$

ii) $x^2 + 2x - 7$; $x^2 - 5x + 3$

iii) $3a - 4b$; $7a - 2b$ and $-2a + b$

iv) $a^2 - 6$; $-4a^2 + 2$ and $-7a^2 + 5$

Q36. Add :

i) $x^2 - 3x + 4$; $4x^2 - 2x + 7$ and $-x^2 + 5x - 2$

ii) $x^3 + 6x^2$; $5x^2 + 3x$ and $5x - 7$

Q37. Simplify:

- i) $(c^2 + 2cd) + (-3cd - d^2)$
- ii) $(x - 6) + (3x - 4) + (x - 1)$
- iii) $3mn^2 + 4m^2n^2 + (-5mn^2) + (-mn^2)$
- iv) $(x - y) + (y - x) + (2y - x)$

Q38. Subtract $(2x + 3y)$ from $(3x + 7y)$.

Q39. Subtract:

- i) $5a - 3b$ from $2a + b - 2$.
- ii) $-x^2 - 3z$ from $5x^2 - y + z + 7$
- iii) $-2a + b + 4d$ from $4a - 2b - c$.

Q40. Subtract:

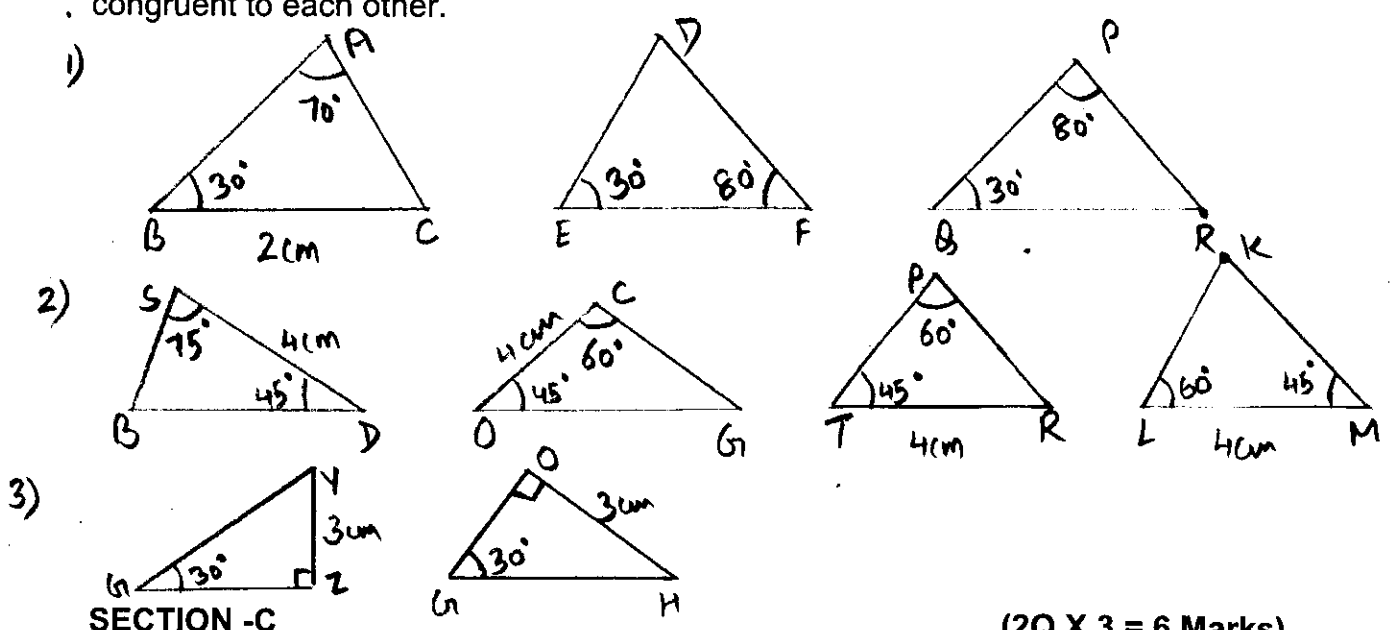
- i) $(5a + 6) - (4a + 3)$
- ii) $(7x + 2) - (4x + 5)$
- iii) $(5p + 6) - (p - 3)$
- iv) $(7x^2y - 4) - (4x^2y - 7)$
- v) $(m^2 + n^2) - (2m^2 - 3n^2)$

Q41. Evaluate the following expressions for $n = 5$.

- i) $n + 12$
- ii) $3n - 10$
- iii) $2n^3 + 11$
- iv) $90 - 4n^2$

CHAPTER - 10 (CONGRUENCE)

Q42. Show by comparing angles and sides, which of the triangles given here are congruent to each other.



SECTION -C

(2Q X 3 = 6 Marks)

EACH QUESTION CARRIES 3 MARKS

CHAPTER - 4 (EXPONENTS AND POWERS)

Q43. Simplify:

- i) $(-3)^2 \times 4^3$
- ii) $(-2)^2 \times (-3)^3 \times -5$
- iii) $(\frac{2}{3})^2 \times (\frac{1}{2})^3$
- iv) $3^3 + 2^4$

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v) $(-5)^3 \times (-1)^7 \times 2^2$

Q44. Evaluate

i) $(\frac{1}{3})^3 \times (\frac{3}{5})^2$ ii) $(\frac{3}{4})^2 \times (-\frac{1}{2})^3 \times 2^3$ iii) $2^2 + 3^3 + 4^3$ iv) $(5 \times 2^3)^2$

v) $[\frac{24}{11}]^3 \times [\frac{11}{8}]^3$

Q45. Express the following products in exponential form:

i) $8^5 \times 8^9$

iii) $5^3 \times 5^4 \times 5^{10}$

ii) $(-2)^4 \times (-2)^{11}$

iv) $(-7)^2 \times (-7)^{12} \times (-7)^6$

Q46. Simplify and express the result in power notation.

a) $(\frac{3}{5})^8 \times (\frac{3}{5})^5$

c) $[(\frac{2}{3})^4]^2$

b) $(\frac{7}{3})^5 \times (\frac{7}{3})^6 \times (\frac{7}{3})^{20}$

d) $[(\frac{-3}{4})^3]^4$

Q47. Find the value of

i) $(5x)^3$ when $x = -\frac{2}{5}$

ii) $(-2ab)^4$ when $a = \frac{3}{5}$, $b = \frac{-1}{2}$

Q48. Express the following with a single exponent:

i) $(2^3)^5 \times (2^7)^2$

ii) $[(\frac{-3}{5})^2 \times (\frac{-3}{5})^4]^3$

Q49. Simplify:

i) $(\frac{4}{4})^8 \div (\frac{4}{4})^3$

ii) $(\frac{-2}{-2})^3 \div (\frac{-2}{-2})^2$

iii) $(-\frac{3}{4})^4 \div (-\frac{3}{4})^2$

iv) $(4)^6 \div (4)^8$

v) $(\frac{-4}{-4})^7 \div (\frac{-4}{-4})^3$

vi) $(\frac{-7}{-7})^8 \div (\frac{-7}{-7})^7$

vii) $(\frac{-4}{5})^{12} \div (\frac{-4}{5})^{10}$

viii) $(\frac{5}{6})^6 \div (\frac{5}{6})^8$

Q50. Express each of the following products in exponential form:

i) $7^3 \times 7^4$

ii) $(-6) \times (-6)^5$

iii) $9^2 \times 9^{18} \times 9^7$

iv) $a \times a^2 \times a^3$

Q51. Simplify :

i) $(-2 \times 10^3)^2$

ii) $(-\frac{1}{2} \times 5)^2$

iii) $(\frac{21}{19})^4 \times (\frac{19}{7})^4$

iv) $(-3)^5 \times (\frac{2}{3})^5$

Q52. Find the value of x in each case:

i) $(2)^{x+2} = 256$

ii) $x^3 = 729$

iii) $(-6)^5 \times (-6)^{3-m} = (-6)^3$

iv) $49 \times (-7)^m = -343$

v) $(-\frac{8}{9})^{15} \div (-\frac{8}{9})^x = (\frac{8}{9})^2$

CHAPTER – 5 (ALGEBRAIC EXPRESSION)

Q53. Add $4xy - 2yz + 7zx$; $-3xy + 5yz - 8zx$ and $-6xy - 2zx$.

Q37. Simplify:

i) $(c^2 + 2cd) + (-3cd - d^2)$

ii) $(x - 6) + (3x - 4) + (x - 1)$

iii) $3mn^2 + 4m^2n^2 + (-5mn^2) + (-mn^2)$

iv) $(x - y) + (y - x) + (2y - x)$

Q38. Subtract $(2x + 3y)$ from $(3x + 7y)$.

Q39. Subtract:

i) $5a - 3b$ from $2a + b - 2$.

ii) $-x^2 - 3z$ from $5x^2 - y + z + 7$

iii) $-2a + b + 4d$ from $4a - 2b - c$.

Q40. Subtract:

i) $(5a + 6) - (4a + 3)$

ii) $(7x + 2) - (4x + 5)$

iii) $(5p + 6) - (p - 3)$

iv) $(7x^2y - 4) - (4x^2y - 7)$

v) $(m^2 + n^2) - (2m^2 - 3n^2)$

Q41. Evaluate the following expressions for $n = 5$.

i) $n + 12$

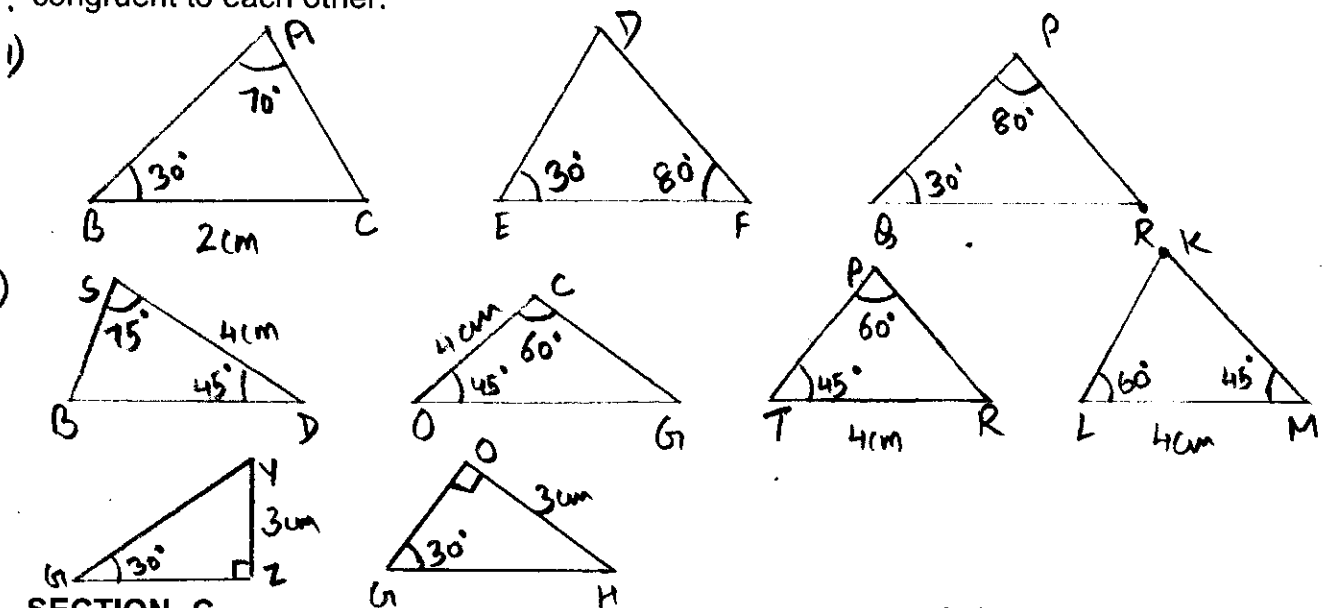
ii) $3n - 10$

iii) $2n^3 + 11$

iv) $90 - 4n^2$

CHAPTER - 10 (CONGRUENCE)

Q42. Show by comparing angles and sides, which of the triangles given here are congruent to each other.



SECTION - C

(2Q X 3 = 6 Marks)

EACH QUESTION CARRIES 3 MARKS

CHAPTER - 4 (EXPONENTS AND POWERS)

Q43. Simplify:

i) $(-3)^2 \times 4^3$

ii) $(-2)^2 \times (-3)^3 \times -5$

iii) $(\frac{2}{3})^2 \times (\frac{1}{2})^3$

iv) $3^3 + 2^4$

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Q54. Add :

$$2c^2 - 3c + 6 ; -2c + 7c^2 - 3 ; c - 3c^2 \text{ and } -4 + c^2 .$$

Q55. Subtract :

i) $(5p + 4q + 7c) - (3p + q + 3c)$

ii) $(3x^2 - 4x + 8) - (4x^2 + 2x - 11)$

iii) $(7m^2 + mn - 4n^2) - (5m^2 - 3mn + n^2)$

iv) $(2x^2 - 7xy - 8y^2) - (2x^2 - 7xy - 8y^2)$

Q56. Simplify the following:

i) $5x + (2x - 3)$

ii) $-2x^2 - (-x^2 + 4x)$

iii) $5x + [2 - (3x - 7)]$

Q57. Evaluate:

i) $p - q$ when $p = -2$, $q = 8$

ii) $4a^2 + 4a - 2$ when $a = -3$.

Q58. Simplify:

i) $5x + (3x - 7)$

ii) $11 + (-7a + 4)$

iii) $6x + (-7x - 2y)$

iv) $8 - (3y + 4)$

v) $5a - (4a - 3x)$

vi) $2y - (3y + 2) - 6 + (3y - 8)$

vii) $[3c - (2c + 5d) - d]$

viii) $4t + [3 - (2t - 4)]$

ix) $3x - [x - (4x + 3y) + 5y]$

x) $\{6x^2 - (2x^2 - y^2) - 2y^2\}$

xi) $- \{ -2b - (3b + 8c) \}$

xii) $- (49 - a^2) - 5a^2$

Q59. Evaluate the expressions given below for $a = -4$:

i) $a + 8$

ii) $6a - 14$

iii) $7a^2 + 7a - 20$

iv) $a^3 + 2a^2 - a + 5$

Q60. Given $m = -2$ and $n = 6$, evaluate:

i) $m + n$

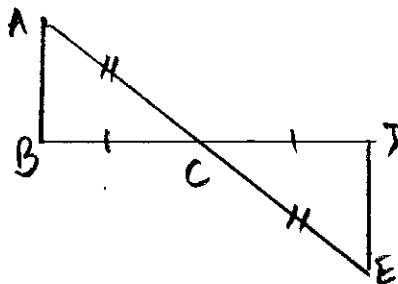
ii) $2m^2 + 8n$

iii) $m^2 - n^2$

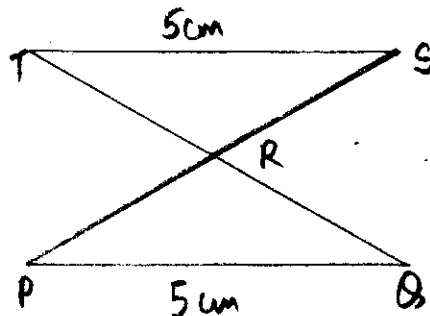
iv) $3m^3 + 2m^2n + m^3$

CHAPTER – 10 (CONGRUENCE)

Q61. In the following figure, state the condition you would use to show that ΔABC and ΔCDE are congruent.

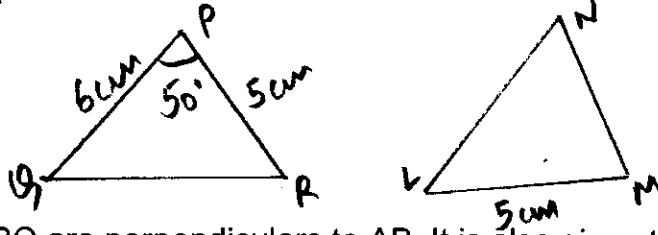


Q62. In this figure, $TS \parallel PQ$ and $TS = PQ$. Prove that the triangles PQR and STR are congruent.

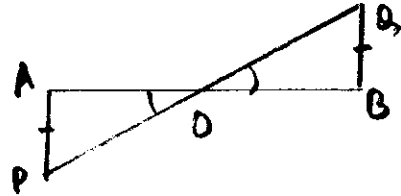


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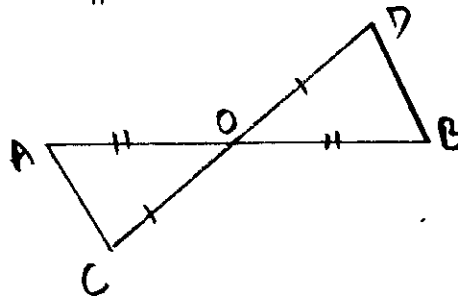
Q63. $\triangle PRQ \cong \triangle LMN$. If $PQ = 6\text{cm}$, $PR = 5\text{cm}$ and $\angle P = 50^\circ$, find NL and $\angle L$ if $LM = 5\text{cm}$ and $QR = MN$.



Q64. AP and BQ are perpendiculars to AB . It is also given that $AP = BP$. Prove that O is the mid-point of the line segments AB and PQ .



Q65. AB and CD intersect each other at O and O is the mid-point of both AB and CD . Prove that $AC = BD$ and $AC \parallel BD$.



SECTION - D

(1Q X 4 = 4 Marks)

EACH QUESTION CARRIES 4 MARKS

CHAPTER - 4 (EXPONENTS AND POWERS)

Q66. Simplify and express the result in power notation:

i) $(\frac{3}{4})^{17} \div (\frac{3}{4})^4$

ii) $(\frac{4}{5})^{23} \div (\frac{4}{5})^{37}$

iii) $(\frac{1}{3})^5 \times (\frac{1}{3})^2$

iv) $(\frac{-5}{9})^4 \times (\frac{-5}{9})^{12} \times (\frac{-5}{9})^8$

v) $[(\frac{1}{3})^7]^3$

vi) $(3^5)^2 \times (3^4)^9$

vii) $[(\frac{-1}{3})^2]^3 \times [(\frac{-1}{3})^4]^5$

Q67. Simplify : $[(\frac{-2}{3})^3 \times (\frac{-2}{3})] \div (\frac{4}{9})^2$ and express the result as a power of 2.

Q68. Find the value of x in each case:

i) $(-3)^{x-1} = -243$

ii) $(\frac{4}{5})^8 \times (\frac{4}{5})^7 = (\frac{4}{5})^{2x+1}$

iii) $(7)^6 \div (7)^{4-m} = 7^8$

Q69. simplify:

i) $\frac{(2^5 \times 3^4) \times 16}{(3^2 \times 64)}$

ii) $\frac{(3^8 \times a^6)}{(9^3 \times a^3)}$

Q70. Find x

a) $2^{10} \times 2^8 = 2^x$

b) $[(\frac{1}{10})^3]^4 = (\frac{1}{10})^x$

c) $[(8)^5 \times (8)^6]^3 = 8^x$

