

p Polynomials

Quick Study Guide

HOW TO

USE THIS GUIDE

HIGHLIGHTED TEXT SHOWS IMPORTANT POINTS

★ MARKS HIGH-FOCUS TOPICS

📝 INDICATES EXAM TIPS

⚠️ SHOWS COMMON ERRORS

💡 GIVES QUICK TIPS

QUADRATIC POLYNOMIALS

Mnemonic: "SQUARE BOSS"

S Second degree
Q Quadratic form
U Use $ax^2 + bx + c$
A 'a' not zero
R Remember form
E Equation standard

Remember As:

BHAIYA JI

- a = Bada brother (x^2)
- b = Middle brother (x)
- c = Chota brother (constant)
- Always write in order

B Basic form
O Order matters
S Standard form
S Solve carefully

Common Errors

- 'a' value zero
- Wrong signs
- Terms missing
- Power confusion

ZEROS OF POLYNOMIAL

Mnemonic: "ZERO HERO"

Z Zero means root
E Equation solve
R Root nikalo
O Or factorize

H How many zeros
E Equal to degree
R Real ya complex
O One by one find

Example:

- $x^2 - 4 = 0$
- $x = \pm 2$
- Zeros are 2, -2

Finding Steps:

ROOTS DHUNDO

1. Put $p(x) = 0$
2. Solve equation
3. Check values
4. Verify answer

FACTORIZATION

Mnemonic: "FACTOR PAPA"

F Find zeros first
A All zeros use
C Convert to factors
T Try splitting
O Organize terms
R Remember signs

P Product method
A Add middle term
P Proper signs
A Arrange neatly

Quick Method:

SPLIT KARO

- For $x^2 + 5x + 6$:
- 1. Find factors of 6 (2,3)
- 2. That add to 5
- 3. Write $(x+2)(x+3)$

Important Cases:

1. Perfect square: $a^2 + 2ab + b^2$
2. Difference of squares: $a^2 - b^2$
3. Cubic: $a^3 + b^3$

DIVISION ALGORITHM

Mnemonic: "DIVIDE GAME"

D Dividend $p(x)$
I Into divisor $g(x)$
V Values match
I Important steps
D Degree check

G Get quotient $q(x)$
A And remainder $r(x)$
M Match degrees
E Equation check

Remember Points:

$$p(x) = g(x)q(x) + r(x)$$

PIZZA CUT

- Like pizza slices:
- Total pizza = $p(x)$
- Each slice = $g(x)$
- No. of slices = $q(x)$
- Leftover = $r(x)$

REMAINDER THEOREM

Mnemonic: "VALUE GURU"

V Value at a
A At $x = a$
L Let's put value
U Use direct
E Easy method

G Get remainder
U Use $p(a)$
R Remember steps
U Use theorem

Quick Method:

CHACHA METHOD

1. Given $p(x)$
2. Put $x = a$
3. Calculate value
4. That's remainder!

Examples As:

- $p(x) = x^2 + 2x + 1$
- At $x = 2$
- $p(2) = 4 + 4 + 1 = 9$
- Remainder = 9

FACTOR THEOREM

Mnemonic: "ZERO MAGIC"

Z Zero at $x = a$
E Equals factor
R Root means factor
O Or divide

M Method simple
A Apply $p(a) = 0$
G Get factor $(x-a)$
I Important theorem
C Check zeros

Steps Remember:

FACTOR TIME

1. Put value
2. If $p(a) = 0$
3. $(x-a)$ is factor
4. Can divide fully

Examples As:

- $p(x) = x^3 - 4x^2 + 5x - 2$
- If $p(1) = 0$
- Then $(x-1)$ is a factor



IMPORTANT IDENTITIES

Mnemonic: "CUBE RULE"

- | | | | |
|---|------------------|---|----------------|
| C | Cube formulas | R | Remember signs |
| U | Use properly | U | Use carefully |
| B | Brackets expand | L | Learn by heart |
| E | Easy to remember | E | Expand fully |

Key Formulas:

YAAD KARO

- $(a+b)^3 = a^3 + b^3 + 3ab(a+b)$
- $(a-b)^3 = a^3 - b^3 - 3ab(a-b)$
- $a^3 + b^3 = (a+b)(a^2 - ab + b^2)$
- $a^3 - b^3 = (a-b)(a^2 + ab + b^2)$

QUICK REVISION CHECKLIST

Before Exam:

- ✓ Quadratic standard form
- ✓ Zero finding methods
- ✓ Factorization tricks
- ✓ Division algorithm
- ✓ Remainder theorem
- ✓ Factor theorem
- ✓ Important identities

Scoring Tips:

- Show all steps
- Check degrees
- Verify zeros
- Write proper signs
- Draw factor diagrams

100%

HIGH FOCUS AREAS

- Quadratic Form (5 marks)
- Zeros Finding (5 marks)
- Factorization (5 marks)
- Division Method (4 marks)
- Theorems (4 marks)

PROBLEM SOLVING TIPS

Mnemonic: "SOLVE KARO"

- | | |
|---|------------------|
| S | See degree first |
| O | Organize terms |
| L | Look for method |
| V | Verify steps |
| E | Each step check |

- | | |
|---|-------------------|
| K | Keep signs right |
| A | Arrange properly |
| R | Remember formulas |
| O | Order maintain |

GOOD LUCK!

