# Worksheet: Polynomials

Madhya Pradesh State Board · Class 9 · Mathematics · 18 questions · 43 marks

| Name: _____ | Date: _____ | Score: _____ / 43 |
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**Q1.** Which of the following is a polynomial: (a) x + 3, (b) 1/x + 5, (c) 2x³  7x + 4, (d) sin(x) + 1? *[1 mark]*

**Q2.** Find the degree of the polynomial 4xu7x² + 6. *[1 mark]*

**Q3.** Find p(3) if p(x) = 2x²  5x + 1. *[1 mark]*

**Q4.** Is x = 2 a zero of p(x) = x³ + 2x²  5x  6? *[1 mark]*

**Q5.** Expand (3x + 4)² using an identity. *[1 mark]*

**Q6.** Without computing, find 102 × 98 using an identity. *[1 mark]*

**Q7.** Find the remainder when p(x) = x³ + 3x²  5x + 7 is divided by (x  2). *[2 marks]*

**Q8.** Find the remainder when p(x) = 3x³  2x² + 4x  1 is divided by (3x  1). *[2 marks]*

**Q9.** Determine whether (x + 1) is a factor of p(x) = xt x³  2x + 2. *[2 marks]*

**Q10.** Factorise 6x² + 11x  10 by splitting the middle term. *[3 marks]*

**Q11.** Factorise 25x²  49y² using an identity. *[2 marks]*

**Q12.** Factorise 8x³ + 27. *[3 marks]*

**Q13.** Expand (2x  3y)³. *[3 marks]*

**Q14.** Factorise x³  6x² + 11x  6 completely. *[4 marks]*

**Q15.** If $a + b + c = 0$, find the value of $a^3 + b^3 + c^3 - 3abc$. *[4 marks]*

**Q16.** If $a + b = 5$ and $ab = 6$, find $a^3 + b^3$ without solving for a, b. *[4 marks]*

**Q17.** If $(x - 2)$ and $(x + 1)$ are both factors of $p(x) = x^3 + ax^2 + bx - 6$, find a and b. *[4 marks]*

**Q18.** Find all integer zeros of $p(x) = x^3 - 5x^2 + 4$. *[4 marks]*