Polynomials: Remainder & Factor Theorem (Grade 12)

WORKSHEET

Name: ..... Class: .....

Date: .....

MARK ____ / 22

Answer all questions. Show all your working — marks are awarded for method as well as the final answer.

1 Determine the remainder when $f(x) = x^3 - 4x^2 + x + 6$ is divided by $(x - 1)$. **(2)**

2 Show that $(x - 2)$ is a factor of $f(x) = x^3 - 4x^2 + x + 6$. **(2)**

3 Factorise $f(x) = x^3 - 4x^2 + x + 6$ completely. **(3)**

4 Solve for x: $x^3 - 4x^2 + x + 6 = 0$ **(2)**

5 Determine the remainder when $f(x) = 2x^3 + x - 3$ is divided by $(x + 1)$. **(2)**

6 If $(x - 3)$ is a factor of $f(x)$, what is $f(3)$? **(1)**

7 Which whole-number values should you test first when factorising a **monic** cubic with integer coefficients (just x^3 in front) and constant term 12? **(2)**

8 Factorise $f(x) = 2x^3 + x^2 - 13x + 6$ completely. **(4)**

9 Solve for x: $x^3 - 7x + 6 = 0$ **(4)**

TOTAL: 22 marks

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