MCINTYRE MATHS · YEAR 10 MATHEMATICS

Practice worksheet

Lesson 4 · Remainder and factor theorems

Name: _____ Date: _____

Remainders

1. Find the remainder when $P(x) = x^3 + 2x^2 - 5x + 4$ is divided by: (a) $x - 1$ (b) $x + 3$ (c) $x - 2$.

2. Find the remainder when $P(x) = x^4 - 3x^2 + x - 2$ is divided by: (a) $x - 2$ (b) $x + 1$.

3. What is the remainder when $2x^3 - x^2 + 4$ is divided by $(x + 2)$?

Factors

4. Which of these are factors of $P(x) = x^3 - x^2 - 10x - 8$? (a) $x + 1$ (b) $x - 2$ (c) $x - 4$ (d) $x + 2$

5. Show that $(x - 3)$ is a factor of $P(x) = x^3 - 4x^2 - 3x + 18$. Hence write $P(x) = (x - 3)Q(x)$, where $Q(x)$ is a quadratic.

Unknown coefficients

6. Find k if $x^3 - kx^2 + 2x + 5$ has remainder 3 when divided by $(x - 1)$.

7. Find k if $(x + 2)$ is a factor of $x^3 + 4x^2 + kx + 8$.

8. The polynomial $P(x) = x^3 + ax^2 + bx - 12$ is divisible by $(x - 2)$ and leaves remainder 6 when divided by $(x + 1)$. Find a and b.

