MCINTYRE MATHS · YEAR 10 MATHEMATICS

Practice worksheet

Lesson 5 · Factorising polynomials to find zeros

Name: _____ Date: _____

Zeros from factors

1. Solve each equation.

(a) $(x+3)(x-7)(x-1)=0$ (b) $(2x-1)(3x+4)(x-6)=0$ (c) $x(2x+3)(x-4)=0$

2. Find the zeros of $P(x)=(x-4)(x^2+x-12)$.

Using the factor theorem

3. Solve $x^3-x^2-14x+24=0$.

4. Solve $x^3 + 5x^2 + 2x - 8 = 0$.

5. Show that $x^3 + x^2 + x - 3 = 0$ has exactly one real solution.

Other techniques

6. Solve each equation. Give exact answers.
(a) $x^3 - 6x^2 + 4x = 0$ (b) $2x^3 + 4x^2 - 6x = 0$

7. Solve $x^3 + 4x^2 - 9x - 36 = 0$ by grouping the terms in pairs.

8. Let $P(x) = x^4 - 2x^3 - 7x^2 + 8x + 12$.

(a) Show that $(x + 1)$ is a factor of $P(x)$.

(b) Divide $P(x)$ by $(x + 1)$.

(c) Hence solve $P(x) = 0$.

(d) What is the greatest number of zeros $P(x)$ could have?

