MCINTYRE MATHS · YEAR 10 MATHEMATICS

Practice worksheet

Lesson 2 · Introducing polynomials

Name: _____ Date: _____

Identifying polynomials

1. Decide which are polynomials. State the degree of those that are.
(a) $3x^5 - x + 2$ (b) $\dfrac{5}{x} + x$ (c) $x^2 + \sqrt{3}\,x - 1$ (d) $2x^4 - \sqrt{x}$

2. For $P(x) = -4x^3 + x^5 - 2x^2 + 9$, write the terms in descending order, then state the degree, leading term, leading coefficient and constant term. Is $P(x)$ monic?

3. Name each polynomial by its degree.
(a) 9 (b) $5 - 2x$ (c) $1 - x^2 + x^3$ (d) $x^4 + x - 2$

Evaluating polynomials

4. If $P(x) = x^3 - 3x^2 + x - 5$, find $P(0)$, $P(1)$, $P(3)$ and $P(-2)$.

5. If $Q(x) = 2x^3 + x^2 - 4$, find $Q(2)$, $Q(-1)$ and $Q\left(\frac{1}{2}\right)$.

Combining and unknowns

6. Let $P(x) = x^2 + 3x - 1$ and $Q(x) = 2x^2 - x + 4$. Simplify (a) $P(x) + Q(x)$ (b) $P(x) - Q(x)$ (c) $2P(x) - Q(x)$.

7. The polynomial $P(x) = x^3 + kx^2 - 3x + 2$ has $P(2) = 12$. Find k.

8. The polynomial $P(x) = x^3 + ax^2 + bx + 6$ has $P(1) = 0$ and $P(-1) = 10$.

(a) Find a and b.

(b) State the degree of $P(x)$ and say whether it is monic.

(c) Find $P(2)$.

