

Divide the polynomials. Give all answers in quotient/remainder form.

1) $(x^3 - 2x^2 + 5x + 1) \div (x - 1)$ 2) $(2x^3 + x^2 + 3x + 7) \div (x + 2)$

3) $(x^4 - 2x^3 + 5x + 2) \div (x + 1)$ 4) $(2x^4 - 3x^3 + 4x^2 - 5x + 2) \div (x - 1)$

5) $(x^5 + x^3 + x) \div (x - 3)$ 6) $(3x^4 - 2x^3 + 5x^2 + x + 1) \div (x^2 + 2x)$

7) Which of the following binomials are factors of $P(x) = x^4 - 3x^2 + 5x - 2$? Explain how you know.

a) $x + 2$

b) $x - 2$

c) $x + 4$

Given a polynomial equation and one or more of its roots, find its remaining roots.

8) $2x^3 - 5x^2 - 4x + 3 = 0$; root = 3

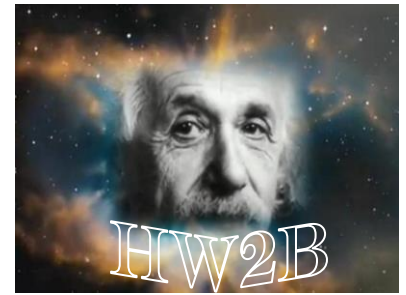
9) $6x^3 + 11x^2 - 4x - 4 = 0$; root = -2

10) $2x^4 - 9x^3 + 2x^2 + 9x - 4 = 0$; roots = ± 1

11) $4x^4 - 4x^3 - 25x^2 + x + 6 = 0$; roots = -2, 3

12) $x^4 + 3x^3 - 3x^2 + 3x - 4 = 0$; roots = -4, 1

13) $x^4 - 2x^3 + x^2 = 4$; roots = -1, 2



1) $x^2 - x + 4 + \frac{5}{x-1}$	7a) no	10) $x = 1/2, 4$
2) $2x^2 - 3x + 9 - \frac{11}{x+2}$	7b) yes	11) $x = \pm 1/2$
3) $x^3 - 3x^2 + 3x + 2$	7c) no	12) $x = \pm i$
4) $2x^3 - x^2 + 3x - 2$	8) $x = -1, 1/2$	13) $x = \frac{1 \pm i\sqrt{7}}{2}$
5) $x^4 + 3x^4 + 10x^2 + 30x + 91 + \frac{273}{x-3}$	9) $x = -1/2, 2/3$	or using the program:
6) $3x^2 - 8x + 21 + \frac{-41x+1}{x^2+2x}$		$x = 0.5 \pm 1.3i$