Finding Zeros of Polynomials WKST 3

Find all roots.

1) $x^3 - 4x^2 + 5x - 2 = 0$

2) $4x^3 + 4x^2 - x - 1 = 0$

3) $3x^3 + x^2 - 3x - 1 = 0$

4) $x^3 + x^2 - 4x + 6 = 0$

5) $x^3 - 6x^2 + 5x = 0$

6) $5x^3 - 29x^2 + 19x + 5 = 0$

State the possible rational zeros for each function.

7) $f(x) = 3x^3 + 10x^2 - 28x + 5$

8) $f(x) = 3x^3 - 17x^2 - 24x - 6$

Write a polynomial function of least degree with integral coefficients that has the given zeros.

9) $2,\ 3,\ 0$

10) $-1,\ 3i$

11) $-5,\ \sqrt{7}$

12) $\sqrt{7}$ mult. 2

Finding Zeros of Polynomials WKST 3

Find all roots.

1) $x^3 - 4x^2 + 5x - 2 = 0$

$\{2, 1 \text{ mult. } 2\}$

2) $4x^3 + 4x^2 - x - 1 = 0$

$\left\{-1, -\frac{1}{2}, \frac{1}{2}\right\}$

3) $3x^3 + x^2 - 3x - 1 = 0$

$\left\{-\frac{1}{3}, 1, -1\right\}$

4) $x^3 + x^2 - 4x + 6 = 0$

$\{-3, 1 + i, 1 - i\}$

5) $x^3 - 6x^2 + 5x = 0$

$\{0, 5, 1\}$

6) $5x^3 - 29x^2 + 19x + 5 = 0$

$\left\{5, 1, -\frac{1}{5}\right\}$

State the possible rational zeros for each function.

7) $f(x) = 3x^3 + 10x^2 - 28x + 5$

$\pm 1, \pm 5, \pm\frac{1}{3}, \pm\frac{5}{3}$

8) $f(x) = 3x^3 - 17x^2 - 24x - 6$

$\pm 1, \pm 2, \pm 3, \pm 6, \pm\frac{1}{3}, \pm\frac{2}{3}$

Write a polynomial function of least degree with integral coefficients that has the given zeros.

9) $2, \ 3, \ 0$

$f(x) = x^3 - 5x^2 + 6x$

10) $-1, \ 3i$

$f(x) = x^3 + x^2 + 9x + 9$

11) $-5, \ \sqrt{7}$

$f(x) = x^3 + 5x^2 - 7x - 35$

12) $\sqrt{7}$ mult. 2

$f(x) = x^4 - 14x^2 + 49$