

Find the roots indicated.

1) $x^3 - 3x^2 - x + 2 = 0$ (the least positive)

2) $x^3 - x^2 - 2x + 1 = 0$ (the least positive)

3) $x^3 - 7x + 7 = 0$ (the 2 roots between 1 and 2)

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

Find the indicated roots (3 decimal places)

5) $\sqrt[3]{6} =$

6) $\sqrt[5]{-9} =$

Find the 3rd degree equation given the roots

7) $3, 2 - i$

8) $\frac{1}{2}, -5 + i$

9) $-\frac{1}{3}, 3 + \sqrt{2}i$

Solve the following equations given 1 root.

10) $x^3 - 4x^2 + 9x - 36 = 0$ ($3i$)

11) $x^3 - 8x^2 + 23x - 22 = 0$ ($3 - \sqrt{2}i$)

Answer Key

1) 0.75

2) 0.45

3) 1.36, 1.69

4) $-0.62, 1.62$

5) 1.817

6) 1.189

7) $x^3 - 7x^2 + 17x - 15 = 0$

8) $2x^3 + 9x^2 + 42x - 26 = 0$

9) $3x^3 - 17x^2 + 27x + 11 = 0$

10) $4 \pm 3i$

11) $2, 3 \pm \sqrt{2}i$