

$$4. 2x^3 - 9x^2 - 11x + 8 = 0$$

$$\textcircled{1} \frac{\pm 1, \pm 2, \pm 4, \pm 8}{\pm 1, \pm 2} = \frac{\pm 1, \pm 2, \pm 4, \pm 8}{\pm 1, \pm 2},$$

$$\frac{1}{2} \left| \begin{array}{cccc} 2 & -9 & -11 & 8 \\ & 1 & -4 & \\ \hline 2 & -8 & -15 & \end{array} \right.$$

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$$9x^4 + 3x^3 - 30x^2 + 6x + 12 = 0$$

$$\pm 1, \pm 2, \pm 3, \pm 4, \pm 6, \pm 12$$

$$\pm 1, \pm 3, \pm 9$$

$$\begin{array}{r} 1 \overline{) 9 \ 3 \ -30 \ 6 \ 12} \\ \underline{9 \ 12 \ -18 \ -12} \\ 9 \ 12 \ -18 \ -12 \ 0 \end{array}$$

$$9x^3 + 12x^2 - 18x - 12 = 0$$

$$\begin{array}{r} -2 \overline{) 9 \ 12 \ -18 \ -12} \\ \underline{-18 \ 12 \ 12} \\ 9 \ -6 \ -6 \ 0 \end{array}$$

$$9x^2 - 6x - 6 = 0$$

$$\frac{6 \pm \sqrt{36 - 4(9)(-6)}}{18}$$

$$\frac{6 \pm \sqrt{36 + 216}}{18}$$

$$\frac{6 \pm \sqrt{252}}{18}$$

$$\frac{6 \pm 6\sqrt{7}}{18}$$

$$\boxed{1, -2 \quad \frac{1 \pm \sqrt{7}}{3}}$$

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Additional Roots

$$\begin{array}{r}
 3i \qquad -2i \\
 -3i \qquad 2i \\
 1+i \qquad 3-i \\
 1-i \qquad 3+i
 \end{array}$$

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cont 6.5

Find a 3rd degree polynomial eg.

$$3, 1+i, 1-i$$

$$(x-3)(x-(1+i))(x-(1-i))$$

$$(x-3)(x^2 - x(1-i) - x(1+i) + (1+i)(1-i))$$

$$(x-3)(x^2 - x + ix - x - ix + 1 - i^2)$$

$$(x-3)(x^2 - 2x + 2)$$

$$x^3 - 2x^2 + 2x - 3x^2 + 6x - 6$$

$$x^3 - 5x^2 + 8x - 6$$

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3rd Degree

-2, 2 - i

$$(x+2)(x-(2-i))(x-(2+i))$$

$$(x+2)(x^2 - x(2+i) - x(2-i) + (2+i)(2-i))$$

$$(x+2)(x^2 - 2x - xi - 2x + ix + 4 - i^2)$$

$$(x+2)(x^2 - 4x + 5)$$

$$x^3 - 4x^2 + 5x + 2x^2 - 8x + 10$$

$$x^3 - 2x^2 - 3x + 10$$

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Pg 343

10 - 16ε

32 - 36

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