Complex Number $z^3 = 8$

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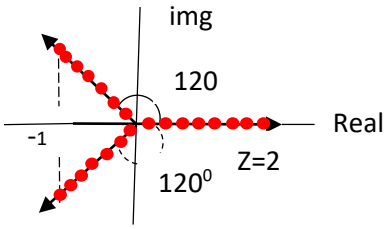

$\frac{360°}{3} = 120°$

$|Z| = 2$

$\cos 0° + i\sin 0° = 1$

$Z_1 = 2(\cos 0° + i\sin 0°) = 2$

$Z_2 = 2(\cos 120° + i\sin 120°) = -1+\sqrt{3}i$

$Z_3 = 2(\cos 240° + i\sin 240°) = -1-\sqrt{3}i$

$x^4 + \frac{1}{2}x^3 - 8x - 4 = 0$

$x = 2$ is a solution

$2^4 + \frac{1}{2}2^3 - 8.2 - 4 = 0$

$16 + 4 - 16 - 4 = 0$

$x^3(x+\frac{1}{2}) - 4(2x + 1) = 0$

$x^3(x+\frac{1}{2}) - 4.2(x+\frac{1}{2}) = 0$

$(x^3 - 8)(x+\frac{1}{2}) = 0$

$x^3 = 8$ $\qquad$ $x = -\frac{1}{2}$

(1) $x = 2$
(2) $x = -1+\sqrt{3}i$
(3) $x = -1-\sqrt{3}i$

$x_1 + x_2 + x_3 = 0$