GREATEST COMMON FACTOR

Taking out the GCF first

A cubic that looks difficult becomes a recognizable pattern once the GCF of $2x$ is removed.

01

CUBIC — BEFORE

$$2x^3 + 8x^2 + 8x$$

↓ Remove the GCF — $2x$ divides every term

02

GCF OUT

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

↓ Perfect square trinomial — $x^2 + 4x + 4 = (x + 2)^2$

03

FULLY FACTORED — AFTER

$$2x(x + 2)^2$$