

Factor with Long Division

A2

factoring

- 1st use long division then factor the answer
- if given a root change it into a factor, then divide
ex root is -2 , factor is $(x+2)$

warm up

1. $(x^3 - 1) \div (x + 2)$, is it a factor?
2. $(x^3 - 4x^2 + 2x + 5) \div (x - 2)$, is it a factor?

examples

• fully factor

1. $x^3 - 7x + 6$ if $x = 1$ is a factor answer: $(x - 1)(x - 2)(x + 3)$
2. $x^3 - 4x^2 - 3x + 18$ if $x = 3$ is a factor answer: $(x + 2)(x - 3)^2$
3. $x^3 - 3x - 2$ if $x = 2$ is a factor answer: $(x - 2)(x + 1)^2$