

## Algebraic Methods to Factoring (1.10)

**The Sum and Difference of Two Cubes:** Factor using the sum of two cubes.

<p style="text-align: center;"><b>Sum/Cube of a Binomial</b></p> $a^3 \pm b^3 = (a \pm b)(a^2 \mp ab + b^2)$
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1)  $8x^3 + 27 =$

2)  $64x^3 - 125 =$

**Factoring Trinomials:** Factor.

3)  $x^4 - 14x^2 + 48 =$

4)  $5x^4 + 8x^2 - 4 =$

**Factoring a Four-Termed Polynomial:** Factor by grouping.

5)  $8x^3 + 12x^2 - 2x - 3 =$

6)  $5x^4 - 10x^3 - 3x^2 + 6x =$

**Solving Polynomial Functions:** Find the zeros by factoring.

7)  $f(x) = 8x^3 - 1$

8)  $g(x) = 9x^5 - 9x^3 - 18x$

**Solving Polynomial Functions:** Find the zeros by factoring.

9)  $h(x) = 3x^4 - 7x^2 + 2$

10)  $q(x) = 4x^3 - 12x^2 - x + 3$

**The Factor Theorem:** Factor the equation using the given factor.

11)  $f(x) = x^3 + 6x^2 + 3x - 10$ ;  $x + 5$

12)  $f(x) = 5x^3 - 27x^2 - 17x - 6$ ;  $x - 6$

**The Factor Theorem:** Solve the equation using the given factor.

13)  $f(x) = x^3 + 6x^2 + 3x - 10$ ;  $x + 5$

14)  $f(x) = 5x^3 - 27x^2 - 17x - 6$ ;  $x - 6$