

Name _____

Date: _____

Rational, **Irrational** and **Imaginary** Zeros.

Find all Zeros, Roots, or Factors:

1. $f(x) = x^3 - x^2 + 9x - 9$

2. $f(x) = 4x^3 - 16x^2 + 9x + 9$

Zeros: $1, 3i, -3i$ Roots: $3, \frac{3}{2}, -\frac{1}{2}$

3. $g(x) = x^4 - 5x^2 - 36$

4. $f(x) = x^4 - x^3 - 6x^2 - 50x - 100$

Factors: $(x+3)(x-3)$
 $(x-2i)(x+2i)$ Zeros: $-2, 5, -1+3i, -1-3i$

5. $f(x) = 2x^3 - 54$

6. $h(x) = x^4 - 8x^2 - 9$

Roots: $3, -\frac{3}{2} \pm \frac{3i\sqrt{3}}{2}$

Zeros: $3, -3, i, -i$

7. $g(x) = 2x^5 + 3x^4 + 16x^3 + 27x^2 - 18x$

8. $f(x) = x^4 - 3x^3 - x^2 - 27x - 90$

Zeros: $0, -2, 1/2, 3i, -3i$

Factors: $(x+2)(x-5)$
 $(x+3i)(x-3i)$