

- Write a polynomial in standard form with zeros -3, -1, 5
- Find a 3<sup>rd</sup> degree polynomial with the roots 5 and  $2i$ .
- Describe the end behavior of  $f(x) = x^4 - x^3 - 6x^2$
- Describe the end behavior of  $f(x) = -3x^3 + 18x^2 - 27x + 1$
- Determine the zeros and any multiplicity (number of repeat factors) of  $f(x) = 9x^3 - 81x$
- Determine the zeros and any multiplicity (number of repeat factors) of  $f(x) = x^4 - 8x^3 + 16x^2$
- Divide using long division  $(4x^3 + 5x^2 + 2x - 7) \div (4x - 3)$
- Divide.  $(x^4 - 4x^3 + 2x - 14) \div (x - 4)$
- Divide  $(3x^4 + 5x^3 - 2x^2 + 18 - 6) \div (3x - 1)$
- $(8x^4 - 72x^3 - 4x + 33) \div (x - 9)$
- Factor.  $64x^3 - 1$
- Factor.  $2x^3 + 54$
- Factor.  $x^4 - 7x^2 - 18$
- Factor.  $x^8 - 5x^4 + 4$
- Solve.  $2x^3 - 7x^2 - 4x = 0$
- Solve.  $x^4 - 13x^2 + 36 = 0$

17. Solve.  $x^3 + 2x^2 - 13x + 10 = 0$

23.  $x^3 - 3x^2 + 4x + 12 = 0$

18. List all possible rational roots.  
 $x^3 + 5x^2 - 2x - 15 = 0$

24. Solve.  $4x^3 + x^2 - x + 5 = 0$

19. List all possible rational roots  
 $2x^3 + 3x^2 + 4x + 1 = 0$

20. Solve.  $4x^3 - 12x^2 - x + 3 = 0$

21. Solve.  $x^3 - 5x^2 + 4x + 10 = 0$

22. Solve.  $5x^3 - 11x^2 + 7x + 1 = 0$