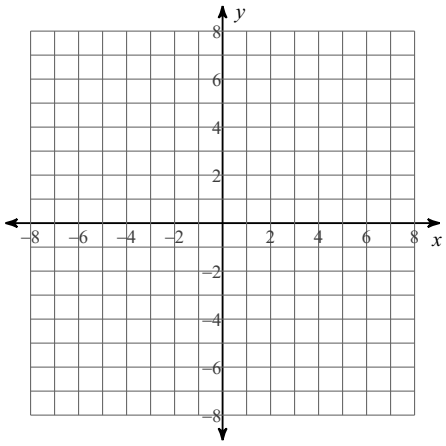
Precalculus Worksheet Name_____

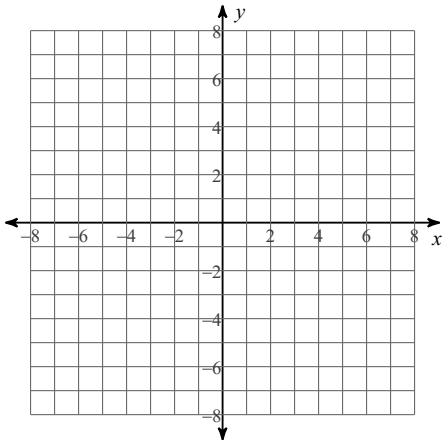
Section 2.3 Higher Degree Polynomials and Curve Sketching Period____

For each function: (a) determine the end behavior by applying the Leading Coefficient Test, (b) state the maximum number of turns the graph could make, (c) determine the real zeros and state the multiplicity of any repeated zeros, (d) find sufficient points to determine relative minimums and/or relative maximums, and (e) sketch the graph. You may use your graphing calculator ONLY TO CHECK YOUR ANSWERS!!!

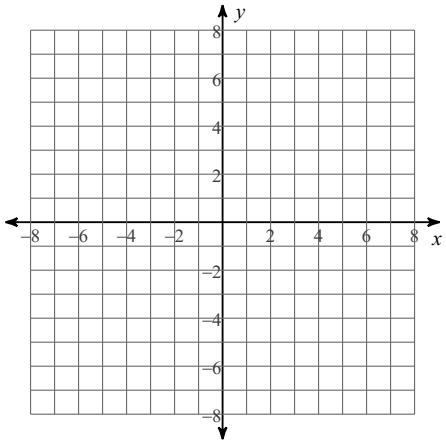
1) $f(x) = -x^2 - 4x - 4$



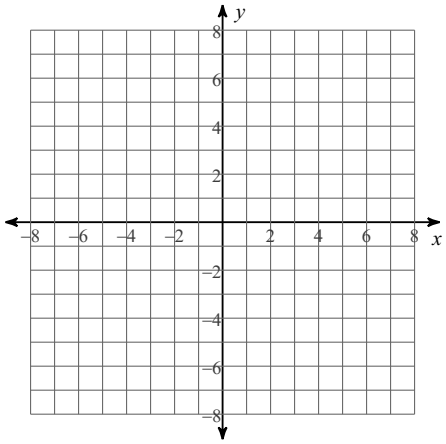
2) $f(x) = x^3 + 3x^2$



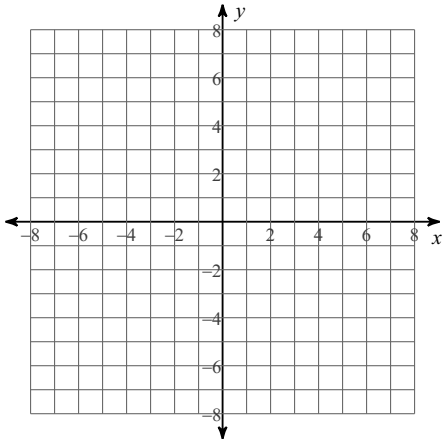
3) $f(x) = x^3 - 5x^2 + 4x$



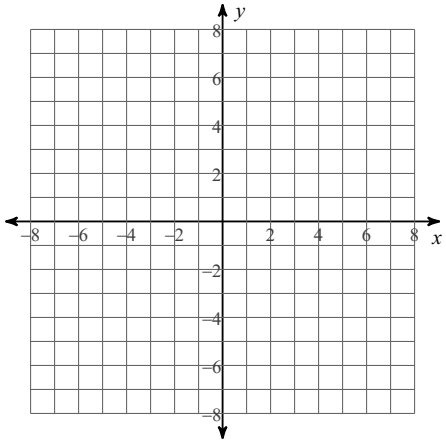
4) $f(x) = -x^3 - 6x^2 - 9x$



5) $f(x) = x^4 + 4x^3 + 4x^2$



6) $f(x) = x^4 + x^3 - 4x^2 - 4x$



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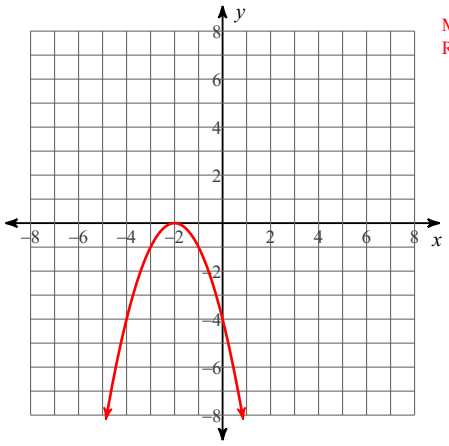
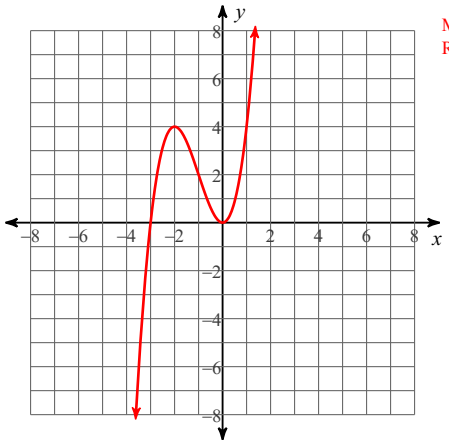
1) $f(x) = -x^2 - 4x - 4$



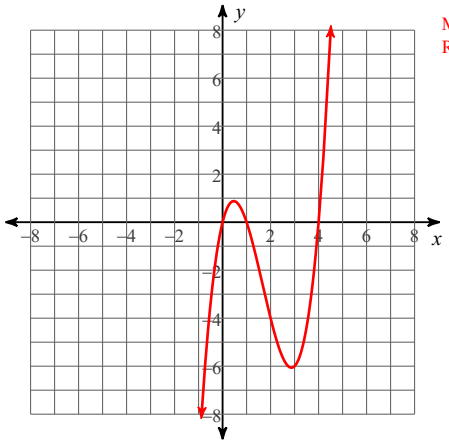
Max # turns: 1
Real zeros: {–2 mult. 2}

2) $f(x) = x^3 + 3x^2$



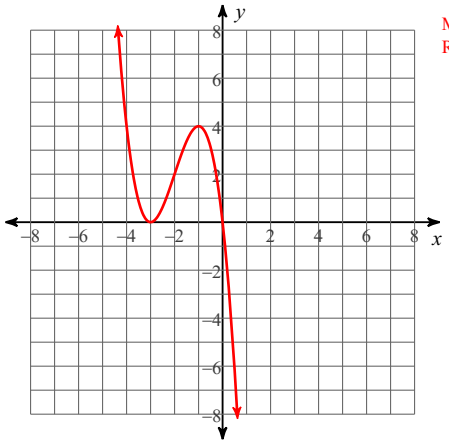
Max # turns: 2
Real zeros: {0 mult. 2, –3}

3) $f(x) = x^3 - 5x^2 + 4x$



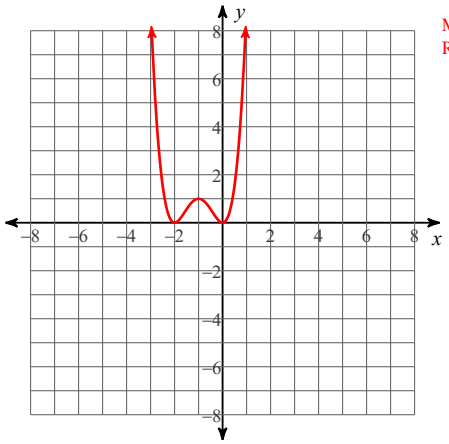
Max # turns: 2
Real zeros: {0, 4, 1}

4) $f(x) = -x^3 - 6x^2 - 9x$



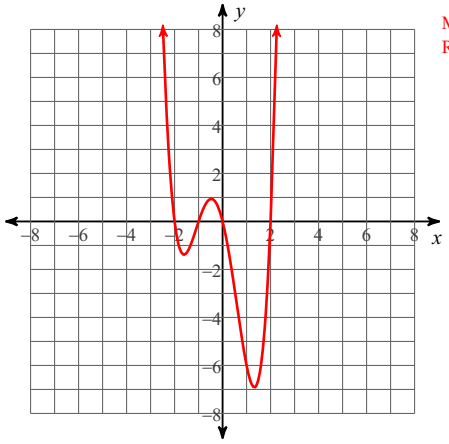
Max # turns: 2
Real zeros: {0, –3 mult. 2}

5) $f(x) = x^4 + 4x^3 + 4x^2$



Max # turns: 3
Real zeros: {0 mult. 2, –2 mult. 2}

6) $f(x) = x^4 + x^3 - 4x^2 - 4x$



Max # turns: 3
Real zeros: {0, 2, –2, –1}