Math Analysis – Worksheet 20 **Quadratics and Polynomials Review**

	What we will be learning…	Homework
	Identifying x-intercepts, y-intercepts, vertex (max/min), axis of quadratics and graphing them. Quadratics in standard form.	Worksheet 13 Worksheet 14
	Finding maximum and minimum values of quadratic applications using calculator, interpretation of solutions. [Vertical Motion]	Worksheet 15
	Finding maximum and minimum values of quadratic applications using calculator, interpretation of solutions. [MAXIMIZING AREA]	Worksheet 14
	Using the leading coefficient test for polynomials to write end behavior (notation)	Worksheet 16
	Finding zeroes and multiplicities of polynomials using factoring	Worksheet 18
	Writing equations of polynomials given zeroes and multiplicities	Worksheet 16
	Graphing polynomials, including: x-int, y-int, zeroes (with multiplicities), end behavior. All polynomials will be factorable.	Worksheet 19
	The Factor Theorem	Worksheet 17

1	Sketch the graph of the quadratic function $f(x)=3x^2-12x+11$. Identify the vertex, *x*-intercept(s) and *y*-intercept without using a calculator
2	Write the vertex form of the quadratic function that has a vertex at $(1,-4)$ and passes through the point $(2,-3)$.
3	Use a graphing calculator to graph the quadratic function $f(x)=30+23x+3x^2$. Find the *x*-intercepts of the graph.
4	Use a graphing calculator to graph the quadratic function $g(x)=x^2+8x+11$. Find the *x*-intercepts of the graph.
5	Find two numbers whose sum is 36 and whose product is as large as possible.
6	A husband and wife have enough wire to construct 160 ft. of fence. They wish to use it to form three sides of a rectangular garden, one side of which is along a building. Find the dimensions that will yield the largest area.
7	A ball is thrown upward from the top of a 64-foot tower with an initial velocity of 96 ft/sec. The height of the ball is determined by $h(t)=-16t^2+96t+64$. a) How high is the ball after 5 seconds? b) When does the ball reach its maximum height? c) How high will the ball go? d) When will the ball reach the ground?
8	Write the polynomial function of least degree with zeroes at $2,\sqrt{5}$ and $-\sqrt{5}$.
Find the following for each of the functions in #9 and #10. - End behavior - *x*-intercepts (with multiplicities) - *y*-intercept - Extrema - Intervals of Increase/Decrease	
9	$f(x)=5x^3+26x^2+5x$
10	$f(x)=x^4-13x^2+36$

11	Given that $x=2$ is a zero of $f(x)=x^3+2x^2-5x-6$, find the remaining zeros.
12	Determine if $x+1$ is a factor of $f(x)=x^3+8x+11-20$. If so, factor $f(x)$ completely.