IM1 Problem Set 51

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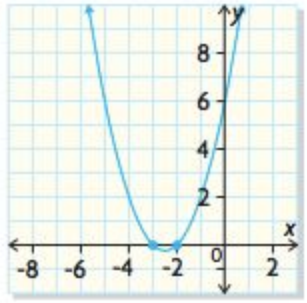
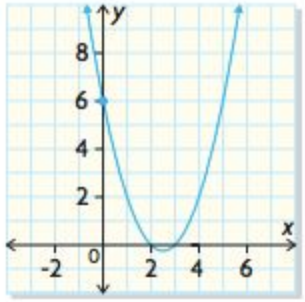
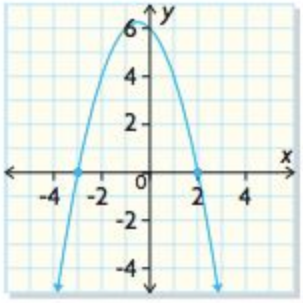
51.1	Use your calculator and a standard view window to graph and analyze the following functions: (Your analysis will include the asymptotes (if any), x- and y-intercepts (if any)) and vertex and axis of symmetry. a. $y = -(x - 4)^2 + 2$ b. $y = (x + 1)^2 - 3$ c. $f(x) = (x + 3)^2 + 2$
51.2	Numeracy Skills: Find the two numbers that: a. will add to a sum of -1 and multiply to a product of -6. b. will add to a sum of -2 and multiply to a product of -8. c. will add to a sum of 11 and multiply to a product of 18. d. will add to a sum of -11 and multiply to a product of 24. e. will add to a sum of -7 and multiply to a product of -30. f. will add to a sum of 10 and multiply to a product of 25. g. will add to a sum of 8 and multiply to a product of 7. h. will add to a sum of -19 and multiply to a product of 48. i. will add to a sum of 22 and multiply to a product of 121.
51.3	The SAMSOONG company introduces a new cellphone and its PROFITS are modelled by the equation $P(m) = -5m^2 + 80m - 100$ where m is time in months and $P(m)$ is the profit in millions of dollars. The cellphone is sold for a period of 2 years. a. Graph the profit function on your TI-84 and state your window settings. b. Find the zeroes of the quadratic and interpret what they mean. c. Calculate the coordinates of the vertex and interpret. d. Evaluate $P(5)$ and interpret. e. Solve $P(m) = -25$ and interpret
51.4	Expand and simplify the following polynomial expressions: a. (*i*) $(5x + 2)(x + 2)$ (ii) $(7x + 3)(x - 2)$ b. (*i*) $(4x + 1)(x + 2)$ (ii) $(x + 1)(3x - 2)$

51.5	For each graph, state the x-intercept and then use the x-intercepts to determine the equation of the parabola in the form of $y = a(x + \boldsymbol{R})(x - \boldsymbol{S})$ i)  iii)  v) 
51.6	A rocket is launched from the top of a building, rises to a maximum height and then it falls to the ground below. Its height above the ground depends upon the time elapsed according to the model $h(t) = -5t^2 + 30t + 15$, where h is height in meters and t is the elapsed time in seconds. a. Graph the function and state your window settings. b. How tall is the building? c. When does the rocket reach the ground? d. When does the rocket reach its maximum height? What is its maximum height? e. Rewrite using the vertex form of a quadratic function.
51.7	Given the function $y = -(x + 2)^2 + 4$, use your calculator to help answer the following questions about this quadratic relation a. Create a table of values, using the x values of {-4, -3, -2,-1,0,1}. b. Determine the equation of the axis of symmetry. c. Find the coordinates of the vertex. d. Find the coordinates of the zeros. e. Find the y-intercepts. f. Determine the maximum OR minimum value.
51.8	Fun times today and thanks for your participation and efforts in this situation. As requested, I am putting the video of the recorded lesson into our shared google folder ==> (address link below) https://drive.google.com/drive/folders/12SwzmIuNrofSFnJxpHtQ67tCcCTp7LSN