

Work on as many problems as you can together with your group members. Towards the end of lecture your group will be asked to present problems correctly to receive classwork points.

- Find the coordinates of the vertex of the parabola defined by the quadratic functions.
 - $f(x) = -3(x + 4)^2 + 7$ and $f(x) = x^2 - 10x + 25$
 - $f(x) = (x - 3)^2 - 1$ and $f(x) = 4x^2 - 19x + 6$
 - $f(x) = (x - 2)^2 + 3$ and $f(x) = -x^2 + 4x + 9$
 - $f(x) = 5(x + 6)^2 - 3$ and $f(x) = -x^2 - 6x + 6$
 - $f(x) = -2(x - 9)^2 + 27$ and $f(x) = 4x^2 - 16x + 4$
- Use the vertex and intercepts to sketch the graph of the quadratic function. Give the equation for the parabola's axis of symmetry. Use the parabola to identify the function's domain and range.
 - $f(x) = 2(x + 1)^2 - 3$
 - $f(x) = (x - 3)^2 - 1$
 - $f(x) = 9 - (x - 4)^2$
 - $f(x) = (x - 2)^2 - 1$
 - $f(x) = 2(x - 2)^2 - 2$
- Use the vertex and intercepts to sketch the graph of the quadratic function. Give the equation for the parabola's axis of symmetry. Use the parabola to identify the function's domain and range.
 - $f(x) = -x^2 + 6x - 10$
 - $f(x) = 8x - x^2 - 17$
 - $f(x) = x^2 - 2x + 10$
 - $f(x) = 2x - x^2 - 2$
 - $f(x) = 3x^2 - 6x - 4$
- Determine, without graphing, whether the function has a minimum value or a maximum value. Find the value and where it occurs, and find the function's domain and range.
 - $f(x) = 2x^2 - 4x - 7$
 - $f(x) = 2x^2 - 12x - 1$
 - $f(x) = 3x^2 - 18x - 4$
 - $f(x) = -3x^2 + 12x - 1$
 - $f(x) = 2x^2 - 20x - 5$
- Joe has 850 meters of fencing and he wants to enclose a rectangular plot that borders a river. If Joe does not fence the side along the river, find the length and width of the plot that will maximize the area. What is the largest area that can be enclosed?