Name:

QUIZ 14 – MATH IB HL

1. (12%) Write the function **in the vertex, factored and standard forms**:

   $f(x) = 4x^2 - 24(x+1) + 8$

2. (8%) Given the parabola $f(x) = -2(x + k)^2 + 8$. The discriminant must be _____

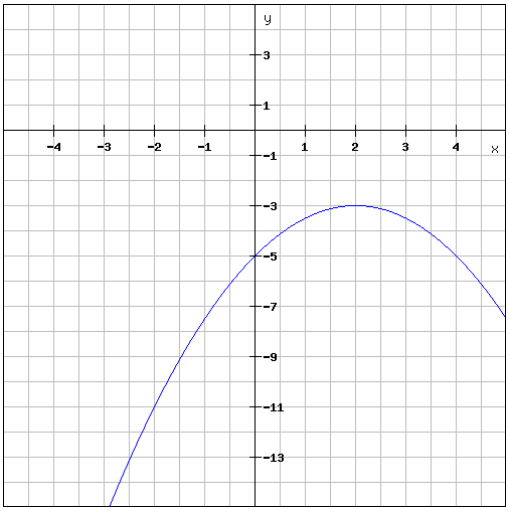
3. (20%) What values of b make the relation $y = 2x^2 + bx + b$

   a. (10%) Have 1 zero

   b. (10%) Have 2 zeros

4. (10%) Write down a quadratic function that opens downwards, wider that x^2, has 1 zero and its vertex is on the left of the y axis.

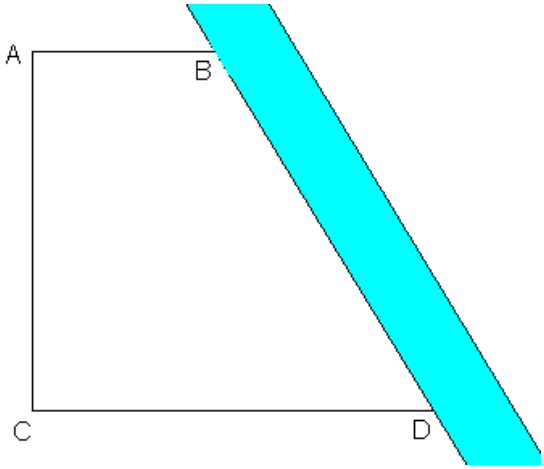
5. (15%) Given the graph, write the expression of the function **in the vertex, factored and standard forms:**



1. (15%) Given a quadratic function whose axis of symmetry is x = 3 and one of its x intercepts is (7, 0). Its y intercept is (0, 1). Write the function in the vertex form.

6. (20%) Given the farm ACDB built next to the river where AB is parallel to CD. The farmer has 100 meters of fencing. CD = 3AB. Diagram not to scale.

   a. (12%) Find the function that represents the **area** of the farm in terms of AB = x.



   b. (8%) Find the length of AB that will maximize that area. Find the area and the dimensions of the farm in this case.