**ACADEMIC TYPE MAX/MIN PROBLEMS.**

1. The graph shown is ***y = 12 – x2*** ***y***

 for ***0 ≤ x ≤ √12***

 P is the general point ***(x, y)*** on the curve.

 ***P(x, y)***

 A rectangle is drawn passing

 through P and the origin (0, 0***) y***

 Find the maximum area of the rectangle. ***x x***

***2.*** The graph shown is ***y = (x – 6)2*** ***y***

 for ***0 ≤ x ≤ 6***

 P is the general point ***(x, y)*** on the curve.

 ***P(x, y)***

 A rectangle is drawn passing

 through P and the origin (0, 0***) y***

 Find the maximum area of the rectangle. ***x 6 x***

3. The graph shown is ***y = 6x – x2*** ***y***

 for ***0 ≤ x ≤ 6***

 P is the general point ***(x, y)*** on the curve.

 ***P(x, y)***

 A triangle is drawn passing

 through P and the origin (0, 0***) y***

 Find the maximum area of the triangle. ***x 6 x***

***EXCELLENCE ONLY!***

***4.*** The graph shown is ***y = (x – b)2*** ***y***

 for ***0 ≤ x ≤ b***

 P is the general point ***(x, y)*** on the curve.

 A rectangle is drawn passing

 through P and the origin (0, 0***)***

 Find the maximum area of the rectangle. ***y***

  ***x b x***