**Unit 6- Systems of Equations and Inequalities \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Lesson 9.3 Quadratic Inequalities in Two Variables**

Specific Outcome 7. Solve problems that involve linear and quadratic inequalities in two variables.

**Example 1: Graph a Quadratic Inequality in Two Variables With *a*** < **0**

1. Graph *y* < **–**2(*x* **–** 3)2 + 1.



1. Determine if the point (2, **–**4) is a solution to the inequality.



**Example 1 : Your Turn**

1. Graph *y* > (*x* **–** 4)2 **–** 2.

**b)** Determine if the point (2, 1) is a solution to the inequality.

**Example 2: Graph a Quadratic Inequality in Two Variables With *a* > 0**

Graph *y* ≥ *x*2 – 4*x* – 5.

**Example 2: Your Turn**

Graph *y* ≤ –*x*2 + 2*x* + 4.

**Example 3: Determine the Quadratic Inequality That Defines a Solution Region**

René, a journalist, is using a parabolic microphone as he covers the Francophone Summer Festival of Vancouver. Describe the region that René can cover with his microphone if the reflector has a width of 50 cm and a maximum depth of 15 cm.

Example 3: Your Turn

A satellite dish is 60 cm in diameter and 20 cm deep. The dish has a parabolic cross-section. Locate the vertex of the parabolic cross-section at the origin, and sketch the parabola that represents the dish. Determine an inequality that shows the region from which the dish can receive a signal.

**Assignment page 496 questions 1a, 2a, 3, 6a,b, 7a, 8a, 9, 13**