

Name: _____ Hour: _____

For each problem, draw a picture on a coordinate plane, clearly showing important points. Then, write an equation and use it to answer each question. **SHOW ALL WORK.**

1) The main cables of a suspension bridge are 20 meters above the road at the towers and 4 meters above the road at the center. The road is 80 meters long. Vertical cables are spaced every 10 meters. The main cables hang in the shape of a parabola. Find the equation of the parabola. Then, determine how high the main cable is 20 meters from the center.

2) The outer door of an airplane hangar is in the shape of a parabola. The door is 120 feet across and 90 feet high. Find an equation describing the door's shape. If you are 6 feet tall, how far must you stand from the edge of the door to keep from hitting your head?

3) An engineer designs a satellite dish with a parabolic cross-section. The dish is 15 ft. wide at the opening and the depth is 4 feet. Find the position of the light source (the focus). How far is it from the deepest part of the dish?