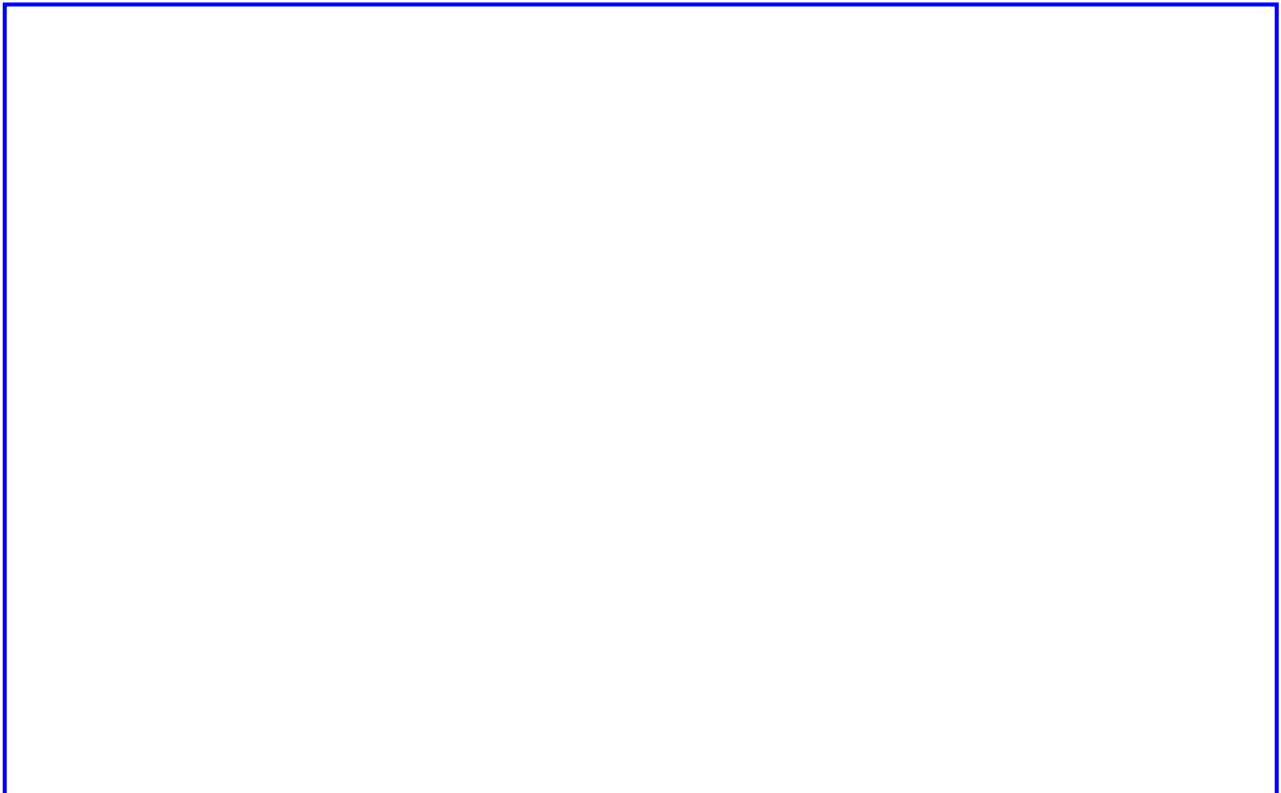


Section 4.5 – Optimization Problems

- *Example. Find two numbers whose difference is 100 and whose product is a minimum*



- *Example. Find the dimensions of a rectangle with area 1000 sq. meters whose perimeter is as small as possible.*



- *Example. A box with a square base and open top must have a volume of 32000 cubic cm. Find the dimensions of the box that minimize the amount of material used.*



- *Example. A rectangular storage container with an open top is to have a volume of 10m^3 . The length of its base is twice the width. Material for the base costs \$10 per square meter. Material for the sides costs \$6 per square meter. Find the cost of the materials for the cheapest such container.*



- **Q:** Why do I say 'about'?
- A:** _____

- *Example. Find the point on the line $6x + y = 9$ that is closest to the point $(-3, 1)$.*

