Algebra 3 Assignment # 8 Quadratic Word Problems

- (1) One positive integer is 3 greater than another. The sum of the squares of the integers is 89. Find the integers.
- (2) A border of uniform with is to be added around a rectangle which measures 8 feet by 12 feet. The area of the new rectangle is to be twice that of the original rectangle. How wide is the border?
- (3) A rectangular pool measures 10 yards by 18 yards. The pool is surrounded by a walk of uniform width. The area of the walk is 52 square yards. How wide is the walk?
- (4) The length of a rectangle is three times its width. If the width is decreased by 1 foot, and the length is increased by 3 feet, the area of the new rectangle will be 72 square feet. Find the dimensions of the new rectangle.
- (5) A strip of masking tape is placed around the edges of a rectangular window prior to painting its frame. If the window measures 3 feet by 4 feet, and the masking tape covers half the area of the window, how wide is the tape?
- (6) A company's daily profit P, in dollars is given by $P = -2x^2 + 120x 180$, where x is the number of articles produced per day. Find the value of x so that the daily profit will be a maximum.
- (7) While pulling a box trailer back to college, Karen approaches a covered bridge in the shape of a parabola whose equation is $y = -\frac{2}{5}x^2 + 23$ (the roadway is represented by the x-axis). The rectangular trailer is 10 feet wide and 14 feet high. Will the truck be able to pass safely through the opening?

Algebra 3 Assignment # 8 Answers

(1) 5 & 8

(2) 2 feet

(3) $-7 + \sqrt{62}$ yards

(4) 4 feet by 18 feet

(5) $\frac{1}{2}$ foot

(6) 30

(7) No