

Math 165/166
Lab 4, Feb 10
Quadratic Equations & Applications

Name:
Box Number:

1. Find the solution to the equations given below. Check your answers for real solutions.
Tip! Use the most efficient method!

(a) $x^2 - 6x + 5 = 0$

(b) $2x^2 - 7x - 1 = 0$

(c) $x^2 - 4x = 7$ (by completing the square)

(d) $2(x - 1)^2 = 4$

2. If \$ P are invested at an annual rate r compounded annually, at the end of two years the amount will be $A = P(1 + r)^2$. At what interest rate will \$1,000 increase to \$1,440 in 2 years?

3. A ball is tossed into the air from a window, and its height y (in feet) above the ground t seconds after it is thrown is given by $y = -16t^2 + 32t + 36$. When does it hit the ground?

4. A wire 256cm long is cut into two pieces. Each piece is bent to form a square. What should the wire be cut so that the sum of the areas of the squares is equal to 2336 cm^2 .

5. One environmental company can clean up an oil spill on a beach in 2 days less than its competitor. Working together, they were able to clean up the spill in 10 days. How long would it have taken the first company to clean up the spill if it worked alone?

Answers:

1. (a) $x = 1, x = 5$ (b) $x = \frac{7 \pm \sqrt{57}}{4}$ (c) $x = 2 \pm \sqrt{11}$ (d) $x = 1 \pm \sqrt{2}$

2. 20%

3. 2.80 sec

4. 176 cm or 80 cm

5. 19 days