**Homework Problems:**

**Part 1: Solving Quadratic Equations**

1. Solve by factoring:
   * a) x^2−11x+18=0
   * b) 3x^2+7x−6=0
   * c) 5x^2−20x=0
2. For each equation, calculate the discriminant, determine the nature of the solutions, and then solve using any method that works:
   * a) x^2−6x+7=0
   * b) x^2+4x+4=0
   * c) 2x^2−3x+5=0
3. A rectangle's length is 5 cm more than its width. Its area is 36 cm². Find the dimensions of the rectangle. (Set up a quadratic equation and solve).

**Part 2: Unit Circle & Basic Trigonometry**

5. Convert the following degree measures to radians (leave in terms of π):

a) 150∘

b) 225∘

c) −60∘

d) 300∘

6. Convert the following radian measures to degrees:

a) 2π/3

b) 5π/4

c) 11π/6

d) −π/2

7. Find the exact values (no decimals, use simplified radicals if necessary):

a) sin(60∘)

b) cos(π/4)

\* (Try parts c-e if you think you can do them)

c) tan(120∘) **hint: tan(x) = sin(x)/cos(x**)

d) sin(7π/6) (convert it to degrees if that helps)

e) cos(330∘)

**Part 3: Graphing Quadratics:**

10. For the quadratic function y=x^2−4x+3:

a) Find the vertex.

b) Find the y-intercept.

c) Find the x-intercepts (if any).

d) Sketch the graph.

11. A ball is thrown upwards. Its height h in feet after t seconds is given by h(t)=−16t2+64t+5. What is the maximum height the ball reaches?