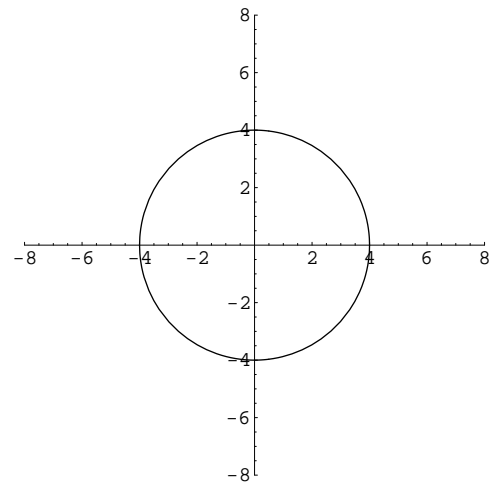


Math 124 (Collingwood) Quiz 1
January 9, 2003
10 points

Name _____
Section/TA _____

Instructions: Show all your work. No credit for answers only. No notes allowed. Scientific calculators are allowed. No graphing calculators are allowed. Quiz is on front and back of this page. You have 15 minutes. Leave answers in EXACT form. For example, $\sqrt{2}$ is exact, whereas 1.414 is an approximation of $\sqrt{2}$.

1. (8pts) Here is the graph of the circle with equation $x^2 + y^2 = 16$.



(a) Find the equation of the tangent line to the circle at the point $P = (2, -\sqrt{12})$.

(b) Plot and label the point P, then draw this tangent line in the picture.

(c) Where does the tangent line at P intersect the x-axis?

2. (2pts) The line ℓ with equation $y = \frac{1}{2}x + 4$ is pictured. Is ℓ tangent to the circle at the point $Q = (0, 4)$? (Justify your answer.)

