Circle, tangent line, and secant line problems.

1. Find the point(s) of intersection of the line passing through the point $(0,-625/24)$ with slope $7/24$ and the circle $x^2+y^2=625$. Decide whether this line is a tangent line, secant line, or neither.

2. Find the point(s) of intersection of the line passing through the point $(0,9/4)$ and parallel to the line $y=\frac{3}{4}x+7$ and the circle $x^2+(y-4)^2=25$. Decide whether this line is a tangent line, secant line, or neither.

3. Find the point(s) of intersection of the line passing through the point $(14,16)$ and parallel to the line $13y-2x=27$ and the circle $(x+3)^2+(y-1)^2=169$. Decide whether this line is a tangent line, secant line, or neither.

4. Find the point(s) of intersection of the line passing through the point $(4,3)$ and perpendicular to the line $5y+4x=-15$ and the circle $(x-1)^2+(y+1)^2=25$. Decide whether this line is a tangent line, secant line, or neither.

5. Given sets of components, find R and θ:
   $R_x = -213$, $R_y = 67$

6. add the given vectors by using the trigonometric functions and the Pythagorean theorem.

   $A = 6.89 \quad \theta_A = 123.0°$
   $B = 29.0 \quad \theta_B = 260.0°$

7. In curing concrete the strength after t days of curing is given by the equation,

$$f = f_c(1-e^{-Kt})$$

Where f_c is the ultimate strength and is given to be 50 Mpa

i) If, f is 15 Mpa after 5 days find K.

ii) How long it will take for the concrete to achieve 90% of its ultimate strength?