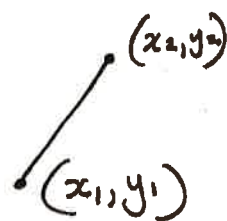


## - MID POINTS

$$\left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$



## - EQUATION OF A CIRCLE

$$(x - a)^2 + (y - b)^2 = r^2$$

centre of circle  $(a, b)$ radius =  $r$ 

## WATCH OUT FOR

$$x^2 + y^2 + 6x + 8y = 0$$

complete square

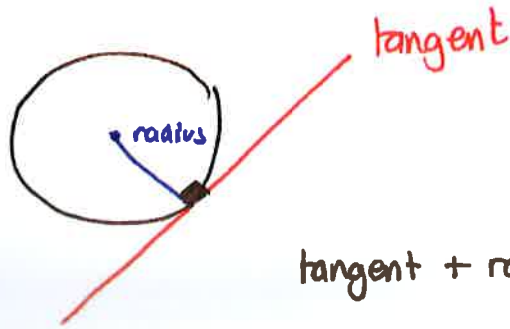
$$x^2 + 6x + y^2 + 8y = 0$$

$$(x + 3)^2 - 9 + (y + 4)^2 - 16 = 0$$

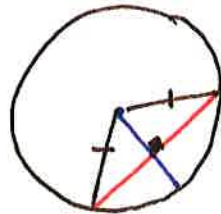
$$(x + 3)^2 + (y + 4)^2 = 25$$

centre =  $(-3, -4)$ radius =  $\sqrt{25} = 5$

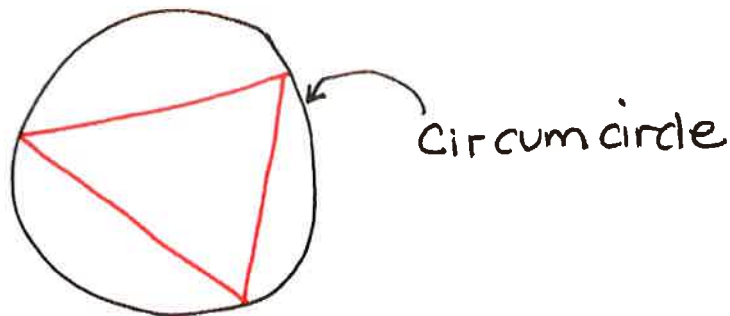
# - CIRCLE PROPERTIES



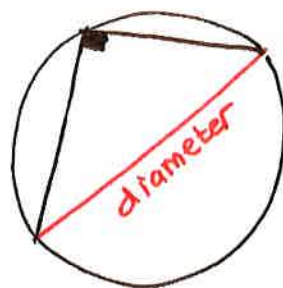
tangent + radius meet at  $90^\circ$



radius/diameter bisects chord



Circumcircle



if diameter then  
meets circumference  
at  $90^\circ$