## Section 10.2: cont'd

example: what is the equation of the circle sketched below?
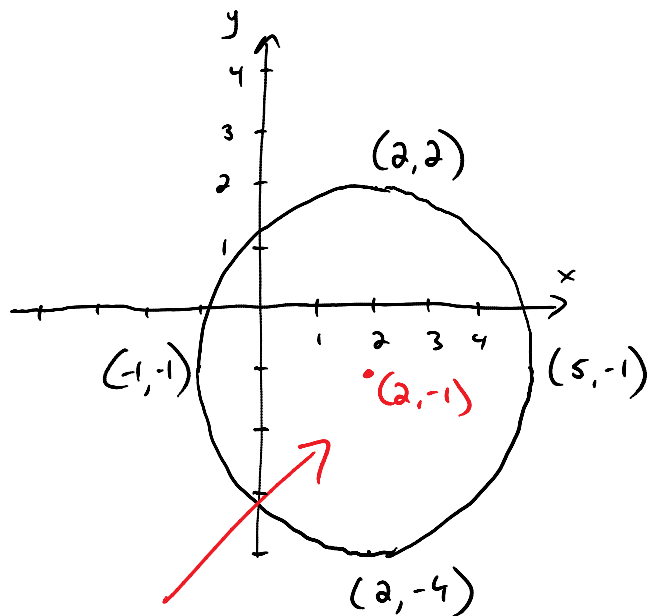


$(h,k) = (2,-1)$

$r = 3$

$(x-h)^2 + (y-k)^2 = r^2$

$$(x-2)^2 + (y+1)^2 = 9$$

midpoint joining the horizontal pair of points (and the vertical)

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example: find the coordinates of the centre and also find the radius of the following equation of a circle:

$$x^2 + y^2 + 6x - 4y + 9 = 0$$

$$x^2 + 6x + (3)^2 + y^2 - 4y + (-2)^2 = -9 + 3^2 + (-2)^2$$
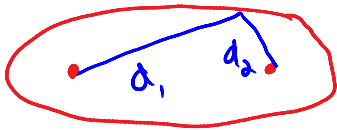
$$(x+3)^2 + (y-2)^2 = -9 + 9 + 4$$
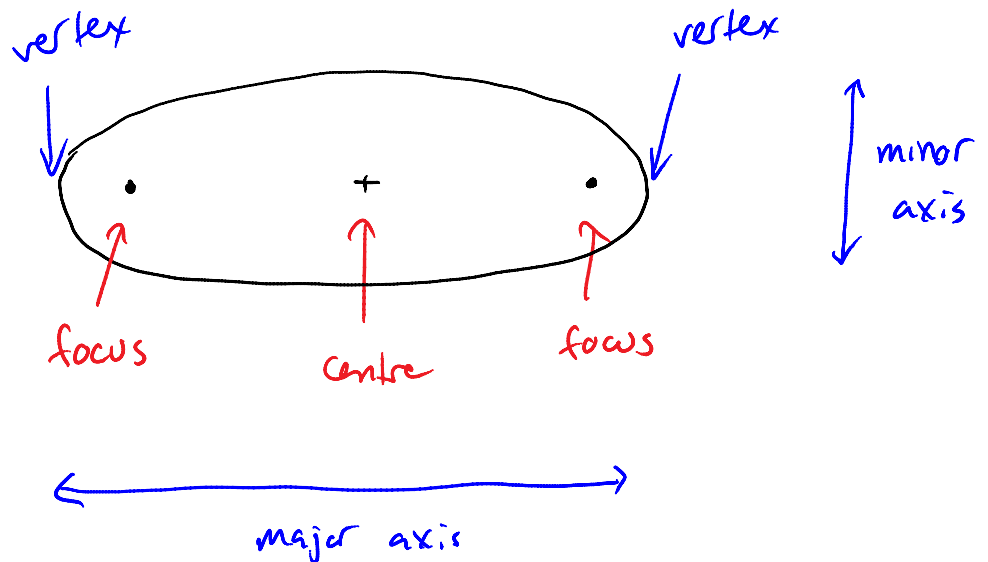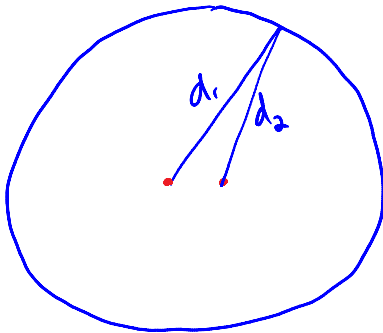
$$(x+3)^2 + (y-2)^2 = 4$$

centre: $(-3, 2)$

radius: $2$

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ellipse $\equiv$ the set of all points in a plane, the sum of whose distances from two fixed points (the foci) is constant

$d_1 + d_2 =$ constant

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vertex                                    vertex

minor axis

focus        centre        focus

major axis

half of the major axis =

semi - major axis