QUESTIONNAIRE
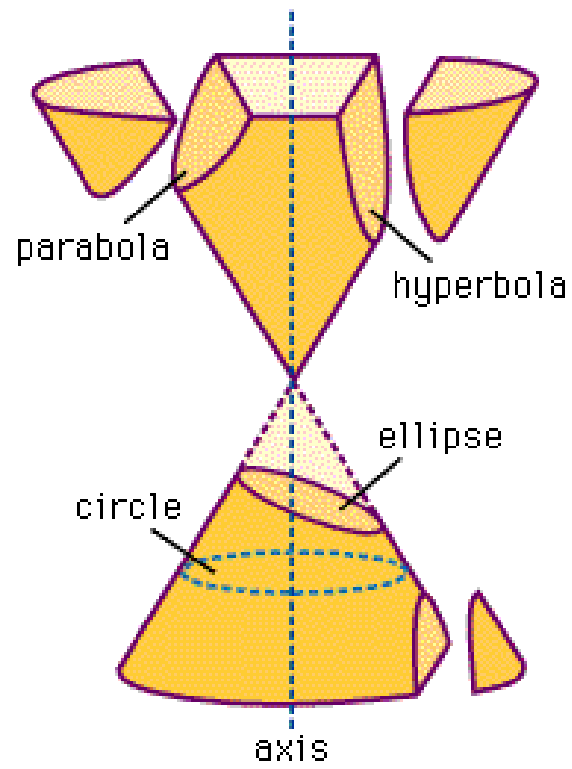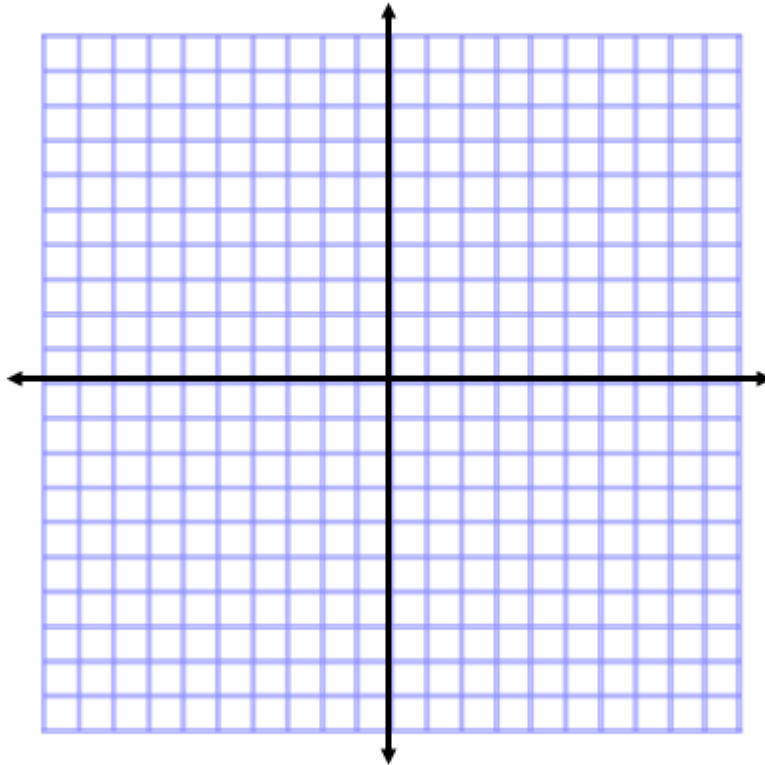# PRETEST A

MAT5105

Questionnaire

Prétest MAT5105
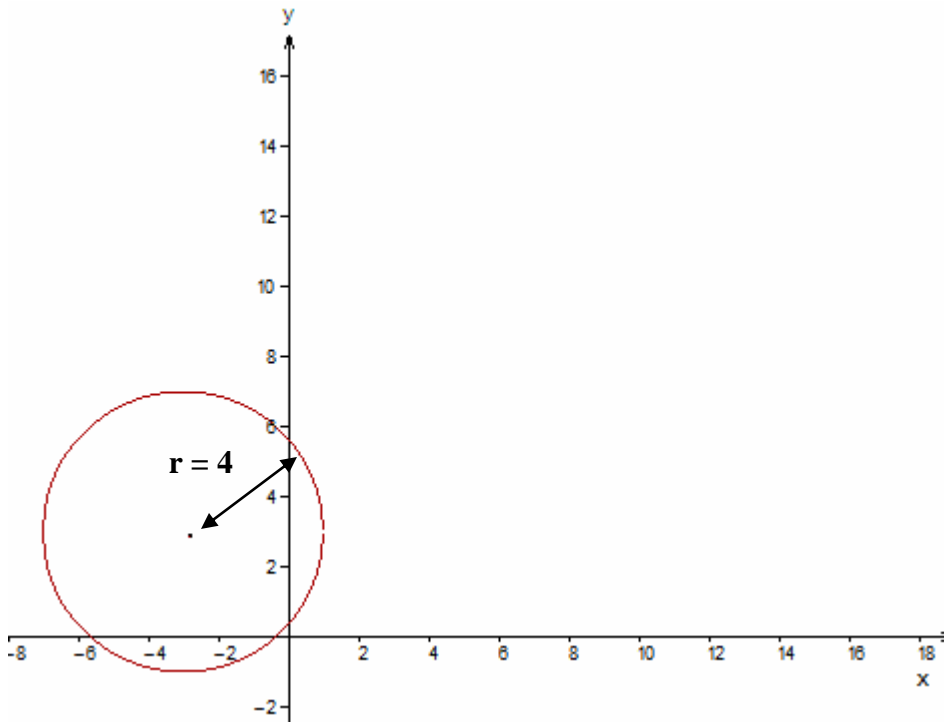
Question 1

Graph the following inequality:

$$x^2 - 6x + y^2 - 2y + 1 \leq 0$$

Clearly show the coordinates of the centre, and draw a radius indicating its length.

Question 2

Give the general form of the equation for the following circle.
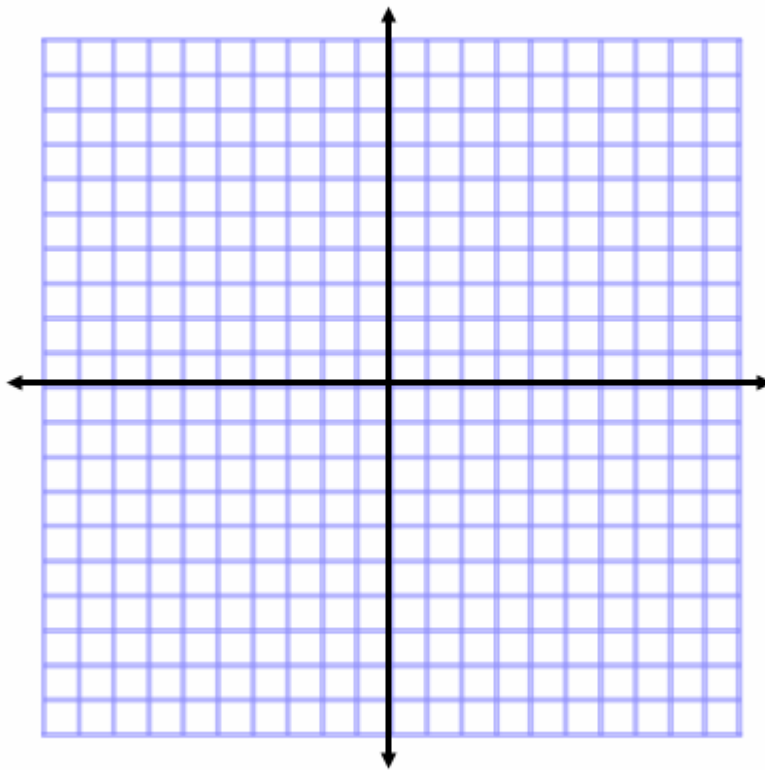

Question 3

What is the equation of the line tangent to the circle $(x-1)^2 + (y-2)^2 = 5$ at point $(2,0)$? Clearly show all your work.
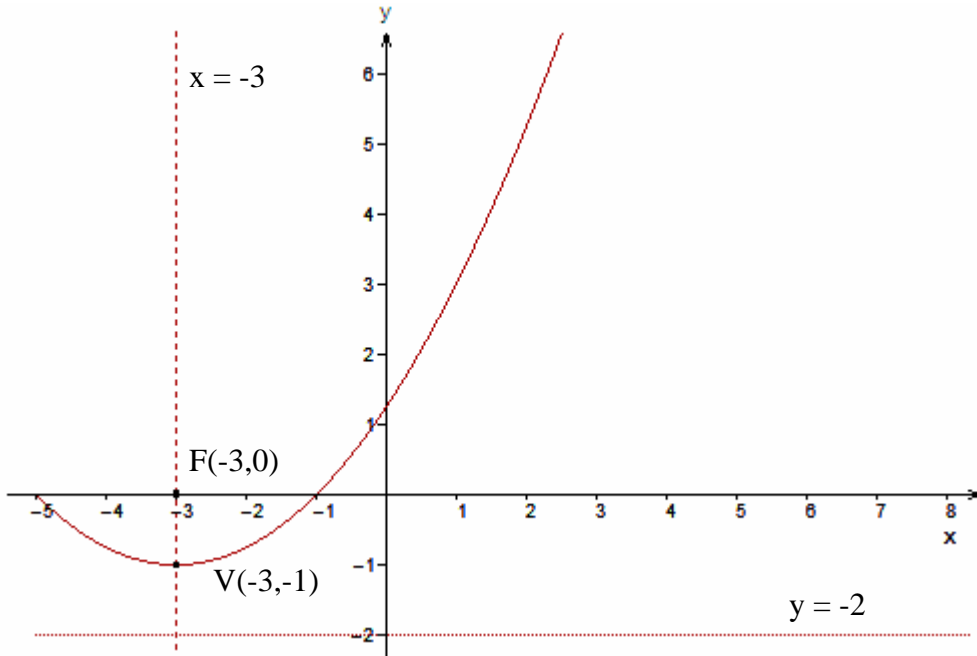
Question 4

Graph the following parabola:

$$(y-3)^2 \leq -8\left(x+\frac{1}{2}\right)$$

Indicate the coordinates of the vertex, the focus as well as the equations of the axis of symmetry and the directrix.

Question 5

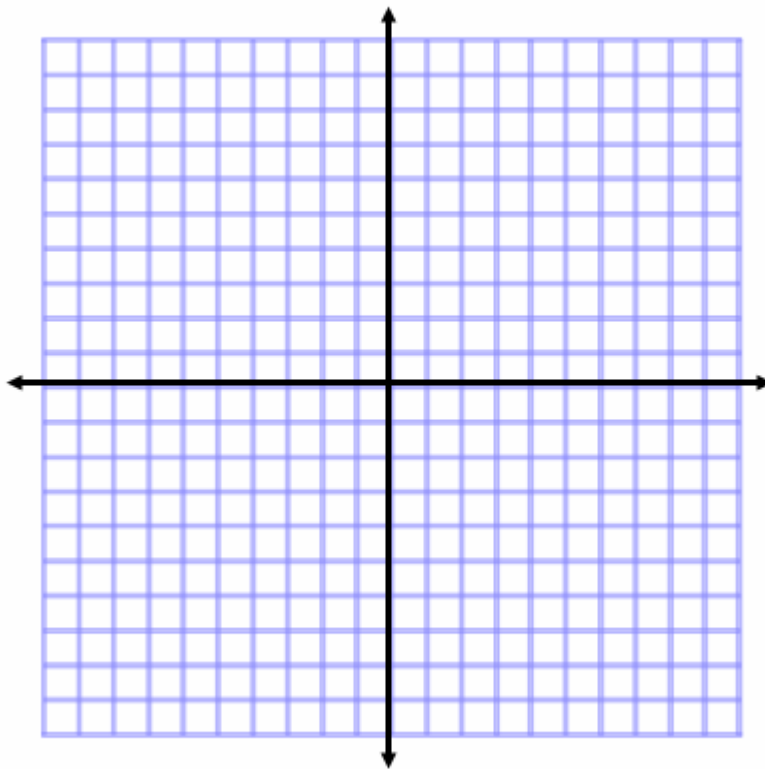Find the equation in standard form of the following parabola:

x = -3

F(-3,0)

V(-3,-1)

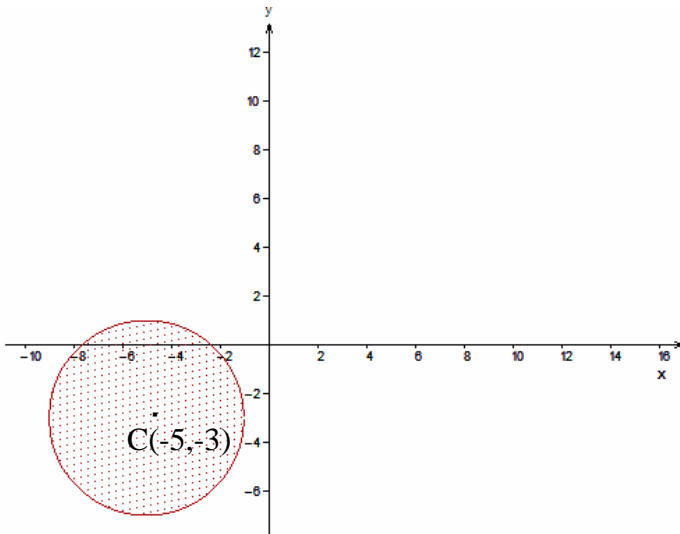y = -2

Question 6

Graph the following inequality:

$$\frac{y^2}{36} - \frac{x^2}{16} \le 1$$

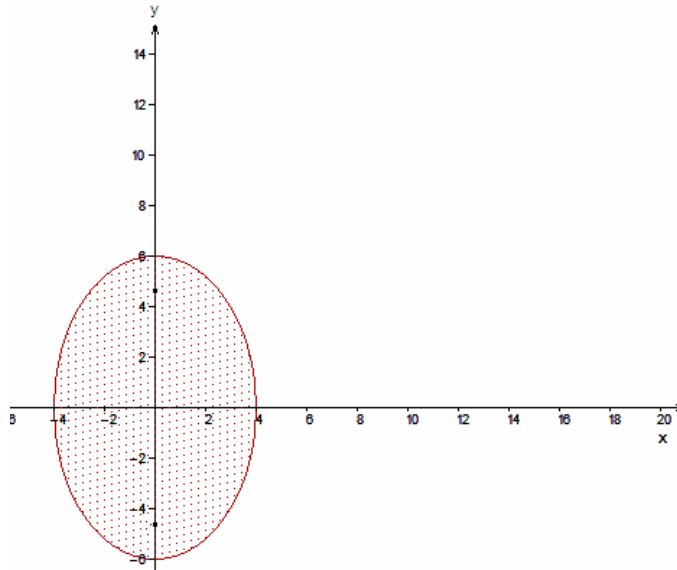Give the coordinates of the vertices, the foci, and graph the asymptotes.

Question 7

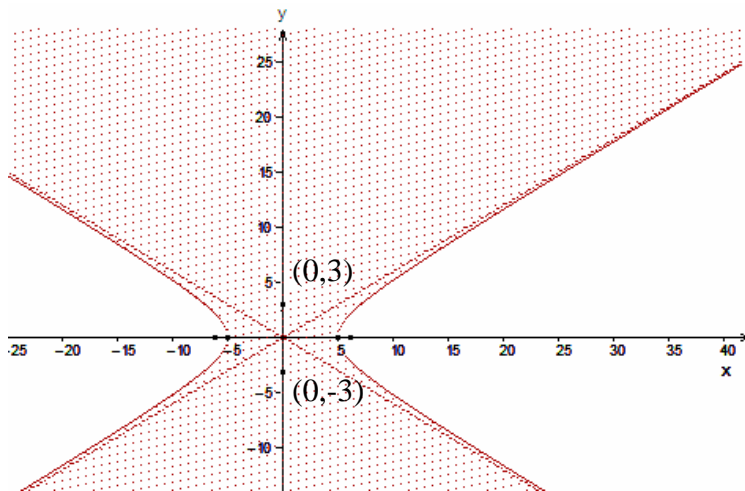Give the domain and range of the following relation in interval notation.

Question 8

Determine the equation or inequality that represents each of the following relations. Give the answer in standard form.
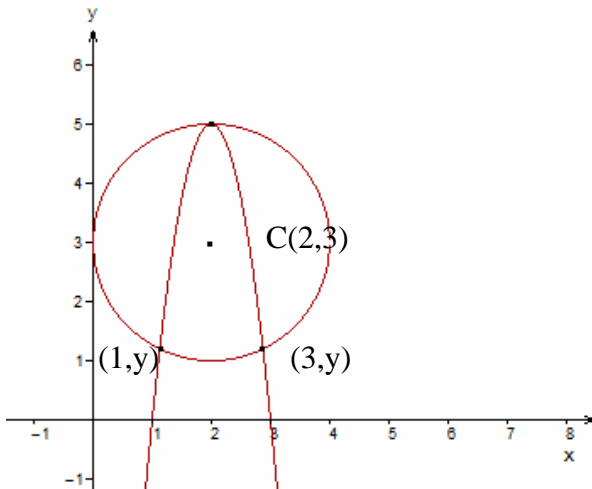
a)

b)

Question 9

Give the general form of the equation of a circle centred at $\left(\dfrac{-1}{2}, \dfrac{3}{4}\right)$ with a radius of 4 units.
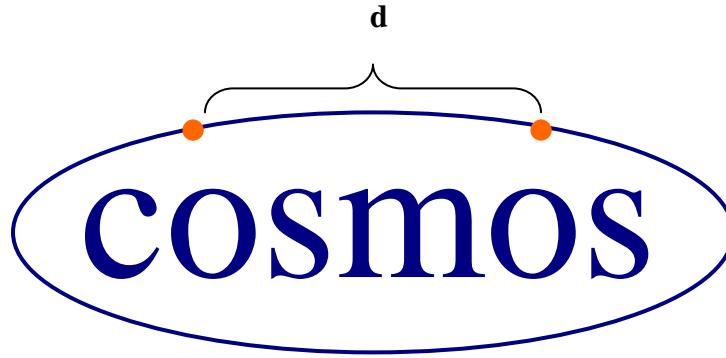
Question 10

Determine the equation of the parabola in the graph below. The centre of the circle is (2,3) and its radius is 2 units. The x-value of the vertex of the parabola is 2, and the x-values of the points of intersection are 1 and 3.

Question 11

Cosmos' sign is in the shape of an ellipse. It measures 4m wide and 2m tall. The owner wants to place a mounting bracket above each O in the sign. Knowing that the sign is 1.6m high at that point, calculate the distance between the two brackets.

Question 12

Christian needs to hit his approach shot onto the green which is elevated 2m. To do this, he must hit his ball 1m over a tree 9m tall. How far will his ball travel, knowing that he is 16m from the tree and that his ball will travel in a parabolic trajectory?