FORENAME:

SURNAME:

STUDENT NO:

12

2019–20 **MATH117 Mathematics for Architecture – Homework 2** N. Course

DEADLINE: Friday 11 October 2019, 4:50pm

Exercise 6 (Domains). Give the largest possible set of real numbers on which each of the following functions is defined. You must explain your answers.

(a) $x^3 - x^2 + x - 1$

(b) $\sqrt{4 - 2x}$

(c) $\frac{7}{x^2-9}$

Exercise 7 (Angles).

Convert the following angles into radians:

(a) $-45°$

(b) $315°$

(c) $10°$

Convert the following angles into degrees:

(d) $\frac{\pi}{9}$

(e) $\frac{5\pi}{4}$

(f) $-\frac{3\pi}{2}$

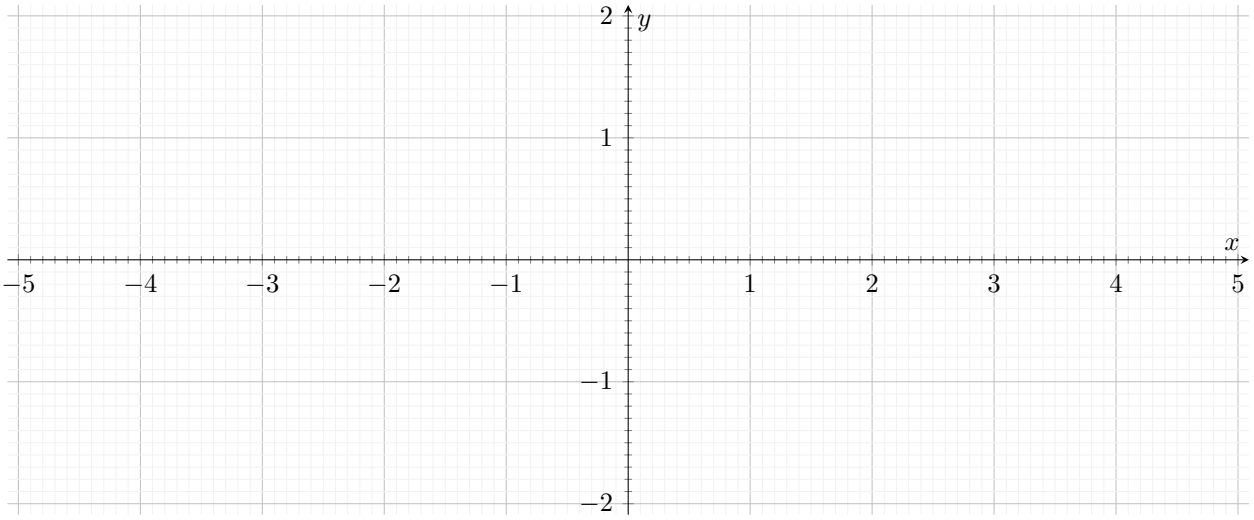
Exercise 8 (Polar Coordinates).

(a) Find Cartesian coordinates (x, y) for the polar coordinates $(r, \theta) = (2\sqrt{3}, 120°)$.

(b) Find polar coordinates (r, θ) for the Cartesian coordinates $(x, y) = (-2, -2)$.

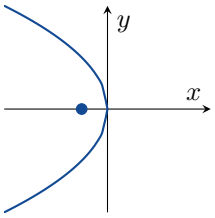
(c) Find Cartesian coordinates (x, y) for the polar coordinates $(r, \theta) = (1080, 1080°)$.

Exercise 9 (Polar Coordinates). Draw the set of points whose polar coordinates satisfy $r \leq -1$ and $0 \leq \theta \leq 180°$.

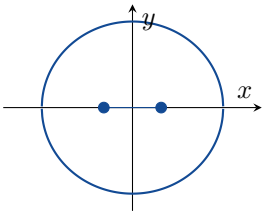


Exercise 10 (Conic Sections).

(a) Find the focus of the parabola $y^2 = -2x$.



(b) Find the foci of the ellipse $9x^2 + 10y^2 = 90$.



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SIGNATURE: