

MPM2D - UNIT ONE QUIZ – ANALYTIC GEOMETRY

Answer all questions and show full process.

KNOWLEDGE AND UNDERSTANDING

- 1) Find the perpendicular bisector of the line segment that connects A (3, 4) and B (8, 1) [4 marks]
- 2) Solve the linear system by both a graphical method and algebraic method (you may use a CAS or graphing system but print and explain your results)

$$\begin{aligned}x - 2y &= 8 \\2x + 4y &= 10\end{aligned}\quad [5]$$

THINKING AND INQUIRY

- 1) Explain what you would do to prove using analytic geometry that a triangle on squared paper is an isosceles triangle. [2]
- 2) Explain what three conditions you would check to see if a shape on a graph was a square. [6]

COMMUNICATION

- 1) A cellphone plan is modelled with the equation $C = 30 + 0.06t$ where C is cost in dollars and t is time in minutes. Explain what the y-intercept and the slope of the line on the graph mean in a real life context. [4]
- 2) Show how Pythagoras's theorem can be used to derive the formula i) length of a line and ii) the radius of a circle [3 marks each]

APPLICATION

- 1) Use your knowledge of analytic geometry or linear systems to find out at what point each of these gyms will be the better deal :
LA Gyms cost 20 dollars a month and 5 dollars a visit. Ironman Gyms charge 30 dollars a month and 3 dollars a visit. [5]
- 2) A cell phone tower is to be placed equidistantly between three towns. Their coordinates on a grid system are : A (0,3) B (5, 6) and C (8, 1) . Find the equidistant point. [6]