

Polar Curves – Q2 [3 marks](12/6/21)

Exam Boards

OCR : Pure Core (Year 2)

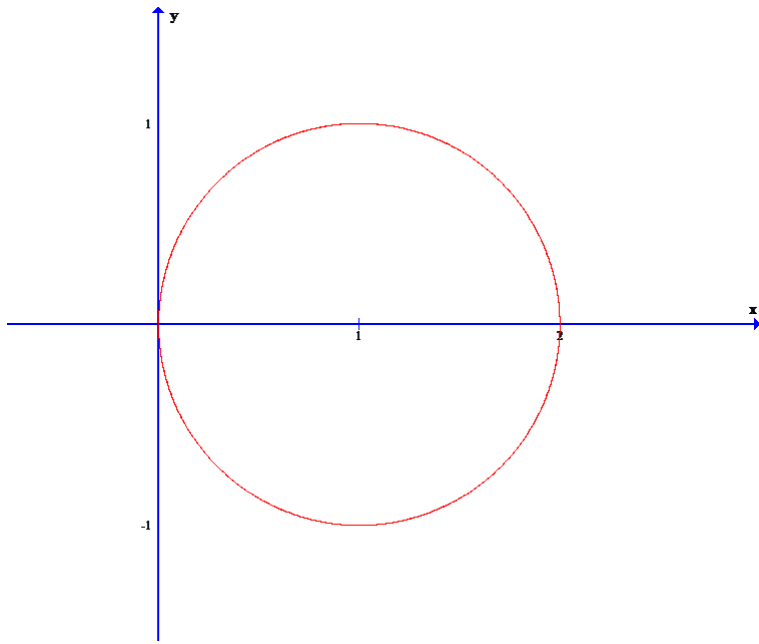
MEI: Core Pure (Year 2)

AQA: Pure (Year 2)

Edx: Core Pure (Year 2)

Convert the curve $(x - 1)^2 + y^2 = 1$ to polar form. [3 marks]

Solution



$$x = r\cos\theta \text{ and } y = r\sin\theta \text{ [1 mark]}$$

$$\text{So } r^2\cos^2\theta + 1 - 2r\cos\theta + r^2\sin^2\theta = 1$$

$$\Rightarrow r^2 - 2r\cos\theta = 0 \text{ [1 mark]}$$

$$\Rightarrow r = 2\cos\theta \text{ or } r = 0$$

$$\text{ie } r = 2\cos\theta \text{ [1 mark]}$$

$$\text{[with } r = 0 \text{ when } \theta = \frac{\pi}{2}\text{]}$$