2000 FG1.3

已知 c 為正數，如果只有一條直綫穿過點 A(1, c)且與曲綫 C: $x^2 + y^2 - 2x - 2y - 7 = 0$ 相交於一點，求 c 的值。

Given that c is a positive number. If there is only one straight line which passes through point A(1, c) and meets the curve C: $x^2 + y^2 - 2x - 2y - 7 = 0$ at only one point, find the value of c .

2000 FG3.3

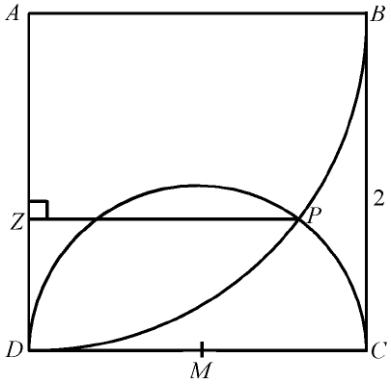
現有點 $A\left(\frac{\sqrt{10}}{2}, \frac{\sqrt{10}}{2}\right)$ 和圓 $C: x^2 + y^2 = 1$。

如果 c 是通過點 A 與圓相切直綫的最大斜率，求 c 的值。

If c is the largest slope of the tangents from the point $A\left(\frac{\sqrt{10}}{2}, \frac{\sqrt{10}}{2}\right)$ to the circle C: $x^2 + y^2 = 1$, find the value of c .

2014 FG4.1

在下圖，$ABCD$ 是一個邊長為 2 的正方形。先以 A 為圓心畫出弧 BD，再以 CD 的中點 M 為圓心從C 到 D 畫出一個半圓。弧 BD 和弧 DC 相交於 P。求 P 與 AD 的最短距離，即 PZ 的長度。



In the figure below, $ABCD$ is a square of side length 2. A circular arc with centre at A is drawn from B to D. A semicircle with centre at M, the midpoint of CD, is drawn from C to D and sits inside the square. Determine the shortest distance from P, the intersection of the two arcs, to side AD, that is, the length of PZ .

Answers

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