



STEP II, 2003, Q2

- 2 Write down a value of θ in the interval $\pi/4 < \theta < \pi/2$ that satisfies the equation

$$4 \cos \theta + 2\sqrt{3} \sin \theta = 5 .$$

Hence, or otherwise, show that

$$\pi = 3 \arccos(5/\sqrt{28}) + 3 \arctan(\sqrt{3}/2) .$$

Show that

$$\pi = 4 \arcsin(7\sqrt{2}/10) - 4 \arctan(3/4) .$$



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