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## Through the Mathematical Looking Glass

Having spent his entire life in the cave of shadows, the prisoner is released from his bonds and rises. He turns his head, walks towards the cave's opening, and steps outside. The bright sunlight is a painful shock. Dazzled, the prisoner is unable to see or recognise a thing—not even the objects whose shadows have long been familiar to him in the dark safety of the cave. Incapable of absorbing what is before him, the prisoner falls back on the familiar world of the cave, with its reassuring dancing shadows.

So it is in Plato's "cave allegory".<sup>1</sup> Humans are mere shackled prisoners, dwelling deep in the darkness of a cave, shielded from the light of truth. What they take for reality is but a dance of shadows on the cave wall, only dimly reflecting the beauty and glory of truth itself. Sadly, however, there is no easy way out of the cave. The unprepared mind that is thrust suddenly under the harsh glare of truth will see nothing, absorb nothing, and understand nothing. Only a long course of education will prepare the soul to accept the light of truth that is all around it. Education, Socrates explains, is the art of turning the soul slowly towards the light, enabling it finally to see the truth as it is.<sup>2</sup>

Chief among the subjects that will liberate the soul from its chains and turn it towards the light is mathematics. First, it is arithmetical calculation, which "leads the soul forcibly upward and compels it to discuss the numbers themselves, never permitting anyone to propose for discussion numbers attached to visible or tangible bodies."<sup>3</sup> This will teach the soul to break with transient physical reality, and turn towards what truly "is". Then comes geometry, which, says Socrates, "is knowledge of what always is, not what comes into being and passes away". Because of this, "it draws the soul towards the truth and produces philosophical thought by directing upwards what we now wrongly direct downwards."<sup>4</sup> Next among the sciences comes astronomy, but not of the vulgar kind

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1 Plato, *Republic*, trans. G.M.A. Grube (Indianapolis, 1992), 515c–516a, pp. 187–188.

2 Plato, *Republic*, 518c–d, p. 190.

3 Plato, *Republic*, 525d, p. 198.

4 Plato, *Republic*, 527b, p. 199.