The Slave Boy

S: It’s not so easy, but I am nevertheless willing to do my best for your sake. Call one of these many servants of yours – whichever one you like – so that I can prove to you what I say is so.

M: Certainly. You there, step forward.

S: Is he a Greek? Does he speak Greek?

M: Quite well. He was born in my household.

S: Pay attention, then; see whether you think he is recollecting or learning from me.

M: I will examine closely.

S: Tell me this, boy. You know that a square figure is like this?

Boy: I do.

S: A square, then, is a figure all four of whose sides are equal?

B: Yes, indeed.

S: And it also has equal lines, like so, through the middle?

B: Yes.

S: And a figure like this could be bigger or smaller?

B: Certainly.

S: If, say, this side were two feet, and this other side two feet, how many feet in area would the whole be? Think about it like this: if it were two feet this way, and only one foot that way, the figure would be one times two feet?

B: Yes.

S: But if it is two feet also that way, it would surely be twice two feet?

B: Yes.

S: How many feet is twice two feet? Work it out and tell me.

B: Four, Socrates.

S: Now let us have another figure with twice the area of this one, with the four sides equal like this one.
B: Yes.

S: How many feet will that area be?

B: Eight.

S: Come now, try to tell me how long each side of figure will be. The side of this one is two feet. What about the side of the one that is double this one?

B: Obviously, Socrates, it will be twice the length.

S: You see, Meno; I am not teaching the boy anything. All I do is question him. And now he thinks he knows the length of the line on which an eight square foot figure is based. Do you agree?

M: I do.

S: And does he know?

M: Absolutely not.

S: He thinks the line will be twice the length?

M: Yes.

S: Watch him now as he recollects things in order – the way one must recollect. Tell me, boy, do you say that a figure double the area is based on a line double the length? I have in mind a figure like this one – not long on one side and short on the other, mind you – but equal in every direction like this one, only double the area; that is, eight square feet. See whether you still believe it will be based on a line double the length.

B: I do.

S: Now the line becomes double the length if we add another of the same length, like so?

B: Yes indeed.

S: And the eight-foot area square will be based on it, if there are four lines of that length?

B: Yes.

S: Well, let us draw from it four equal lines. Surely that will be the thing you say is the eight-foot area square?

B: Certainly.
S: And within this figure we now see four squares, each of which is equal to the four-foot area square?

B: Yes.

S: How big is it, then? Isn’t it four times as big?

B: Of course.

S: Is this square, then, which is four times as big, twice as big?

B: No, by Zeus!

S: How many times bigger is it?

B: Four times.

S: Then, my boy, the figure based on a line twice the length is not double but four times the area?

B: You are right.

S: And four times four is sixteen, is it not?

B: Yes.

S: On how long a line, then, should the eight-foot area square be based? Won’t it be based on this double line?

B: Yes.

S: Whereas this four-foot square is based on a line half the length?

B: Yes.

S: Very well, then. Is the eight-foot area square not double the area of this one and half of that one?

B: Yes.

S: Will it not be based on a line longer than this one and shorter than that one?

B: I think so.

S: Good, you say what you think. So tell me, was this side not two feet long, and that one four feet?

B: Yes.
S: The line on which the eight-foot area square is based must then be longer than two feet, and shorter than four feet?

B: It has to be.

S: Try to tell me, then, how long a line you say it is.

B: Three feet.

S: Then if it is three feet, let us add half of this one to itself, to make three feet? For this is two feet, and that is one foot. And here, likewise, we have two feet and one foot, and so the figure you mention comes to be?

B: Yes.

S: Now if it is three feet this way and three feet that way, will the area of the whole figure be three times three feet?

B: So it seems.

S: How much is three times three feet?

B: Nine feet.

S: And the area of the double square was to be how many feet?

B: Eight.

S: So the eight-foot area figure cannot be based on the three-foot line?

B: Clearly not.

S: But on how long a line, then? Try to tell us exactly, and if you do not want to work it out, show me the line we want.

B: By Zeus, Socrates, I do not know.

S: You realize, Meno, what point he has reached in his recollection. At first he did not know what the basic line of the eight-foot area square was; even now he does not yet know, but then he thought he knew. He answered confidently, as if he knew, and he did not think he was at a loss, but now he thinks he is at a loss; and so, although he does not know, neither does he think he knows.

M: That is true.

S: So he is better off now with regard to this matter he does not understand?

M: I have to agree with that.
S: Have we done him any harm by making him perplexed and paralyzed, like a couple of stingrays?

M: I don’t think so.

S: In fact, we have probably achieved something relevant to the discovery of the way things really are. For now, not knowing, he would be glad to find out, whereas before he thought he could easily make many fine speeches to large audiences concerning the square of double area, and how it must have a base twice as long.

M: So it seems.

S: Do you think that before now he would have tried to find out that which he thought he knew, but did not – before he descended into perplexity and realized he did not know but wanted to know?

M: I do not think so, Socrates.

S: Has he then benefited from his paralysis?

M: I think so.

S: Look, then, at how he will emerge from his perplexity while searching together with me. I will do nothing but ask questions, not instruct. Watch whether you find me instructing and explaining instead of asking for his opinion. You tell me, is this not a four-foot area figure? You understand what I mean?

B: I do.

S: We add to it this figure, which is equal in area?

B: Yes.

S: And we add this third figure, equal to each of the other two?

B: Yes.

S: Could we then fill in that space in the corner?

B: Certainly.

S: So we now have four equal figures?

B: Yes.

S: Well then, how many times is the whole figure larger than this first one?

B: Four times.
S: But we were supposed to have one only twice as large, or don’t you remember?
B: I certainly do.
S: Doesn’t a line drawn from corner to corner cut each of these figures in two?
B: Yes.
S: So now we have four equal lines enclosing a new figure?
B: They do.
S: Consider now: how large is this new figure?
B: I do not understand.
S: Each of these lines cuts off half of each of these four figures making it up, do they not?
B: Yes.
S: How many of this size are there in this figure?
B: Four.
S: How many in this?
B: Two.
S: What is the relation of four to two?
B: Double.
S: How many square feet in this?
B: Eight.
S: Based on what line?
B: This one.
S: That is, based on the line that stretches from corner to corner of the four-foot figure?
B: Yes.
S: Wise men call this the diagonal, so if ‘diagonal’ is its name, do you say the double figure would be the one based on the diagonal?
B: Most certainly, Socrates.