Annex 2.A. Illustrative examples

The items included in this Annex illustrate some of the most important new elements of the framework. For the sake of ensuring the preservation of trend, the majority of the items in the PISA 2022 will be items that have been used in previous PISA assessments. A larger set of release items to illustrate the item pool can be found at http://www.oecd.org/pisa/test.

The items provided in this annex illustrate some of the following new elements:

- the assessment of mathematical reasoning as described in the framework;
- the four topics that have been identified for special emphasis in the PISA 2022 assessment, growth phenomena; geometric approximations; computer simulations; and conditional decision making;
- the range of item features that are possible on account of the Computer-Based Assessment of Mathematics (CBAM);
- computational thinking.

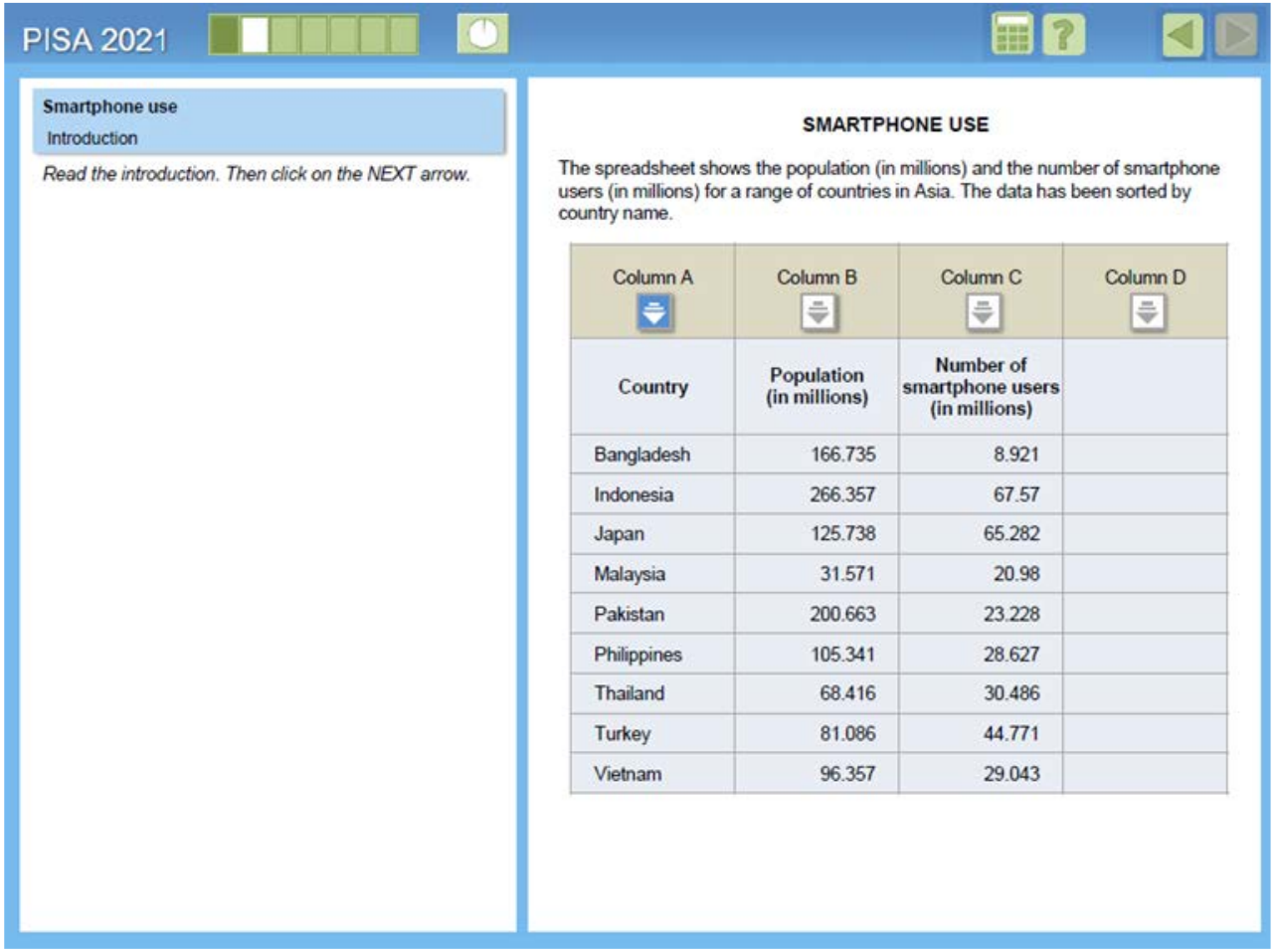
The seven illustrative items provided in this annex include:

- **Smartphone use**: This item illustrates:
  - CBAM capabilities in particular the use of spreadsheets with sorting and other capabilities.
- **The beauty of powers**: This item illustrates:
  - A range of mathematics reasoning items from simple to more complex in a mathematical context; and
  - Hints at growth phenomena, although, in fairness, the context for this item is more focused on reasoning and pattern recognition than it is on growth.
- **Always sometimes never**: This item illustrates:
  - A range of reasoning items from simple to more complex including a range of question types from yes/no and multiple choice to open-ended items
- **Tiling**: This item illustrates:
  - Reasoning and computational thinking; and

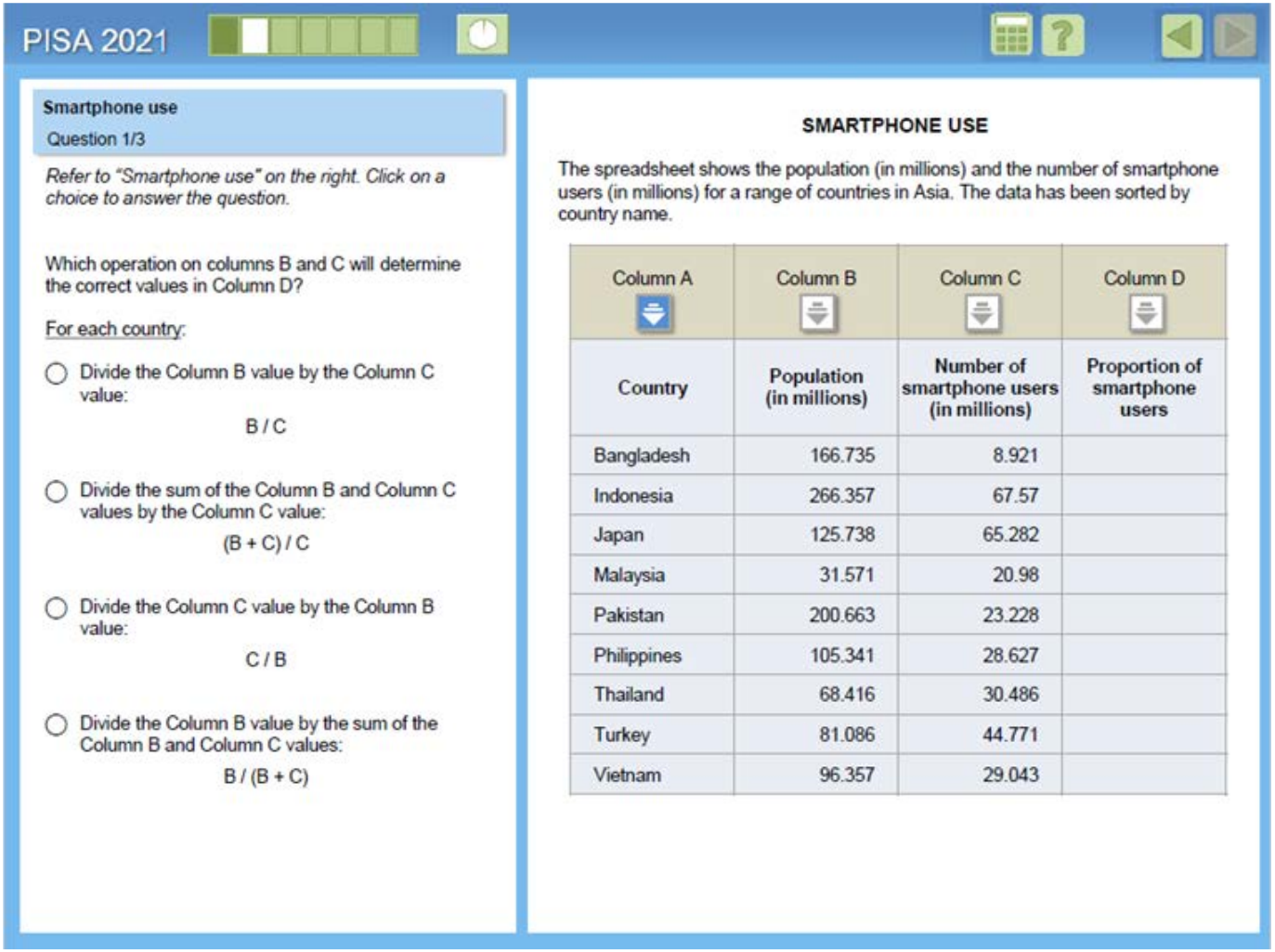
  - Geometric representations.
- **Purchasing decision**: This item illustrates:
  - The application of conditional decision making.
- **Navigation**: This item illustrates:
  - Reasoning in a geometric context; and
  - CBAM capabilities in items.
- **Savings simulation**: This item illustrates:
  - The use a computer simulation; and
  - Hints at growth in the context and impact of interest.

Smartphone use

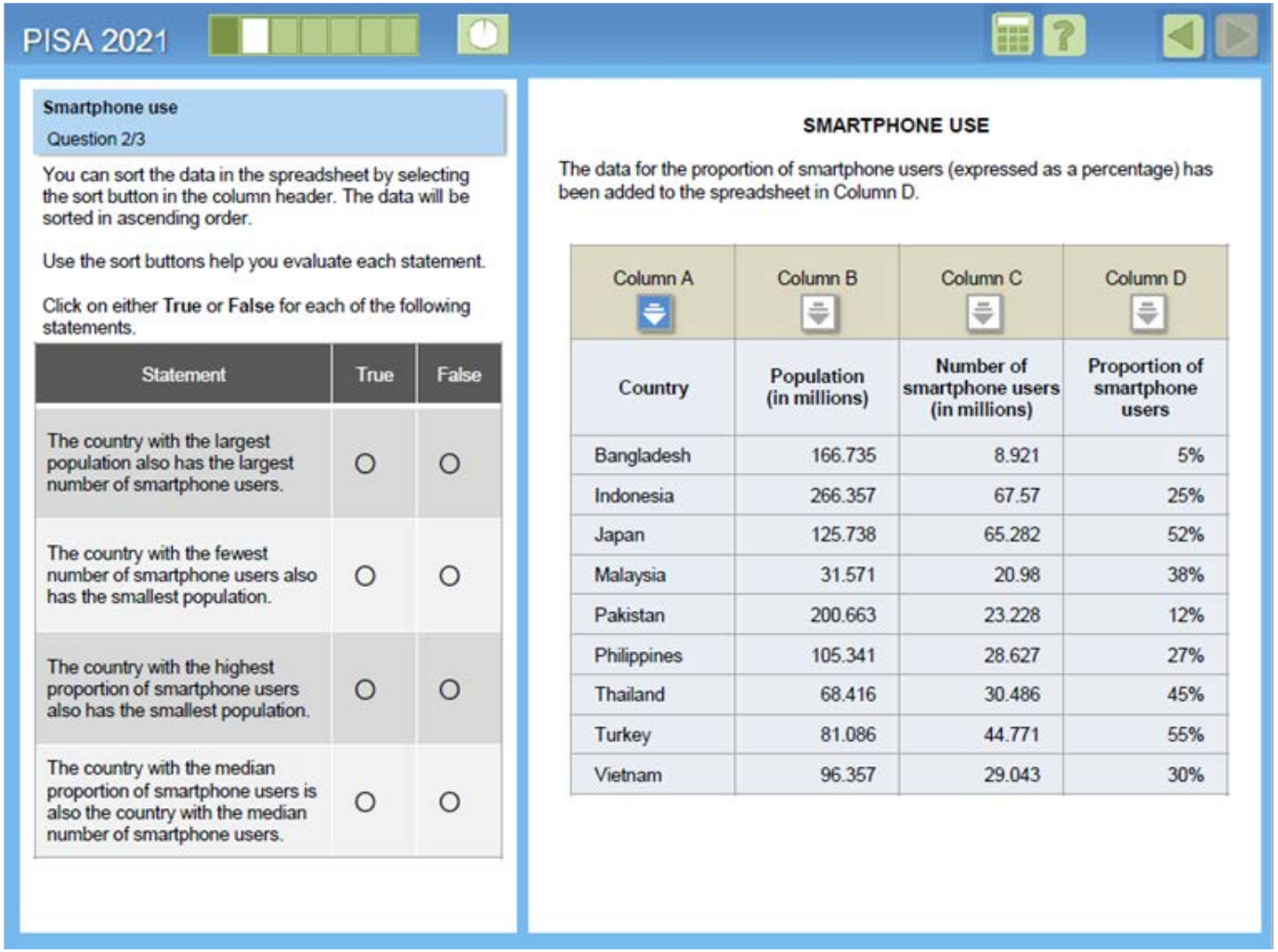
Annex Figure 2.A.1. Smartphone use - Introduction



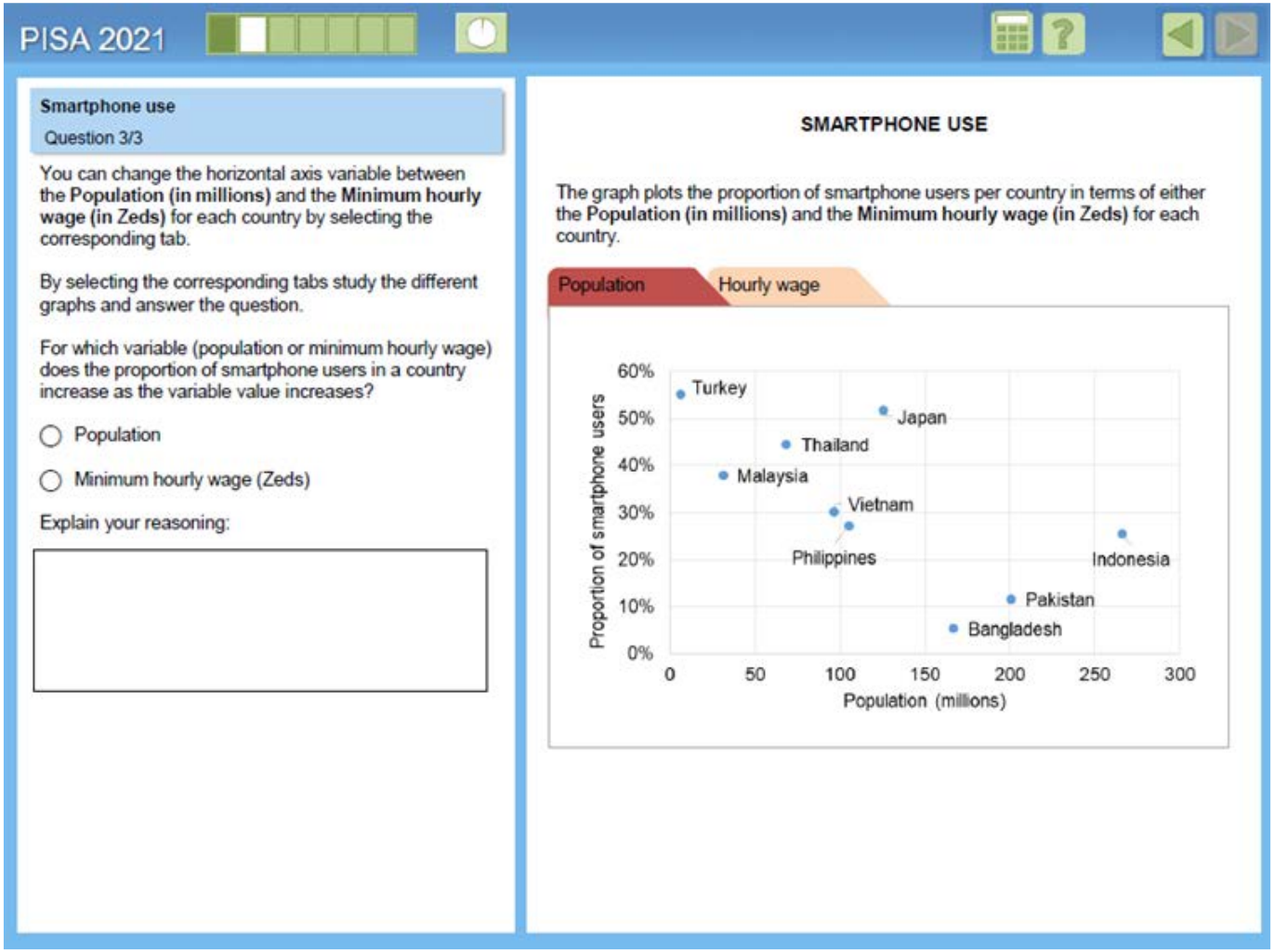
Annex Figure 2.A.2. Smartphone use - Question 1/3



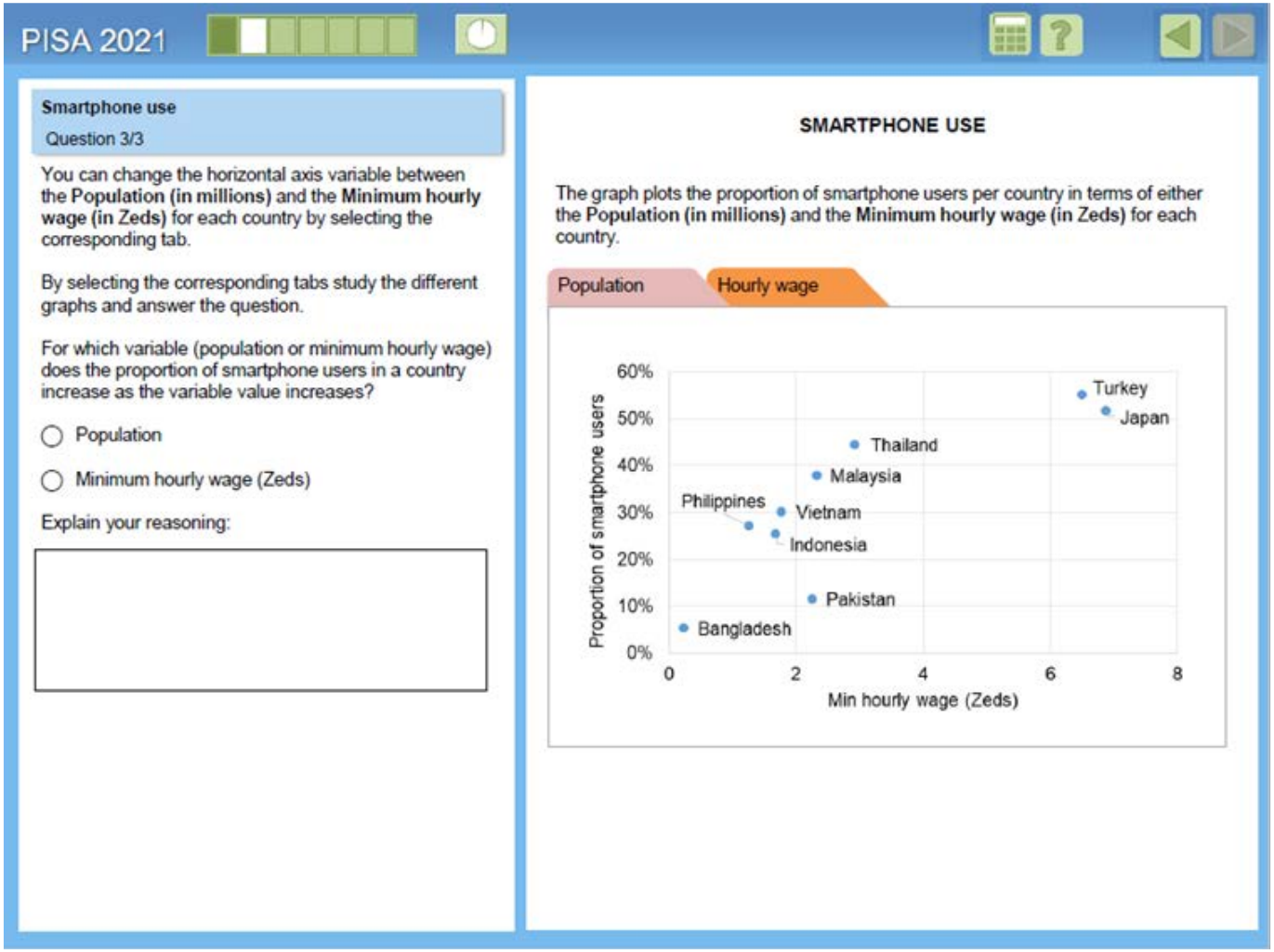
Annex Figure 2.A.3. Smartphone use - Question 2/3



Annex Figure 2.A.4. Smartphone use - Question 3/3 Population

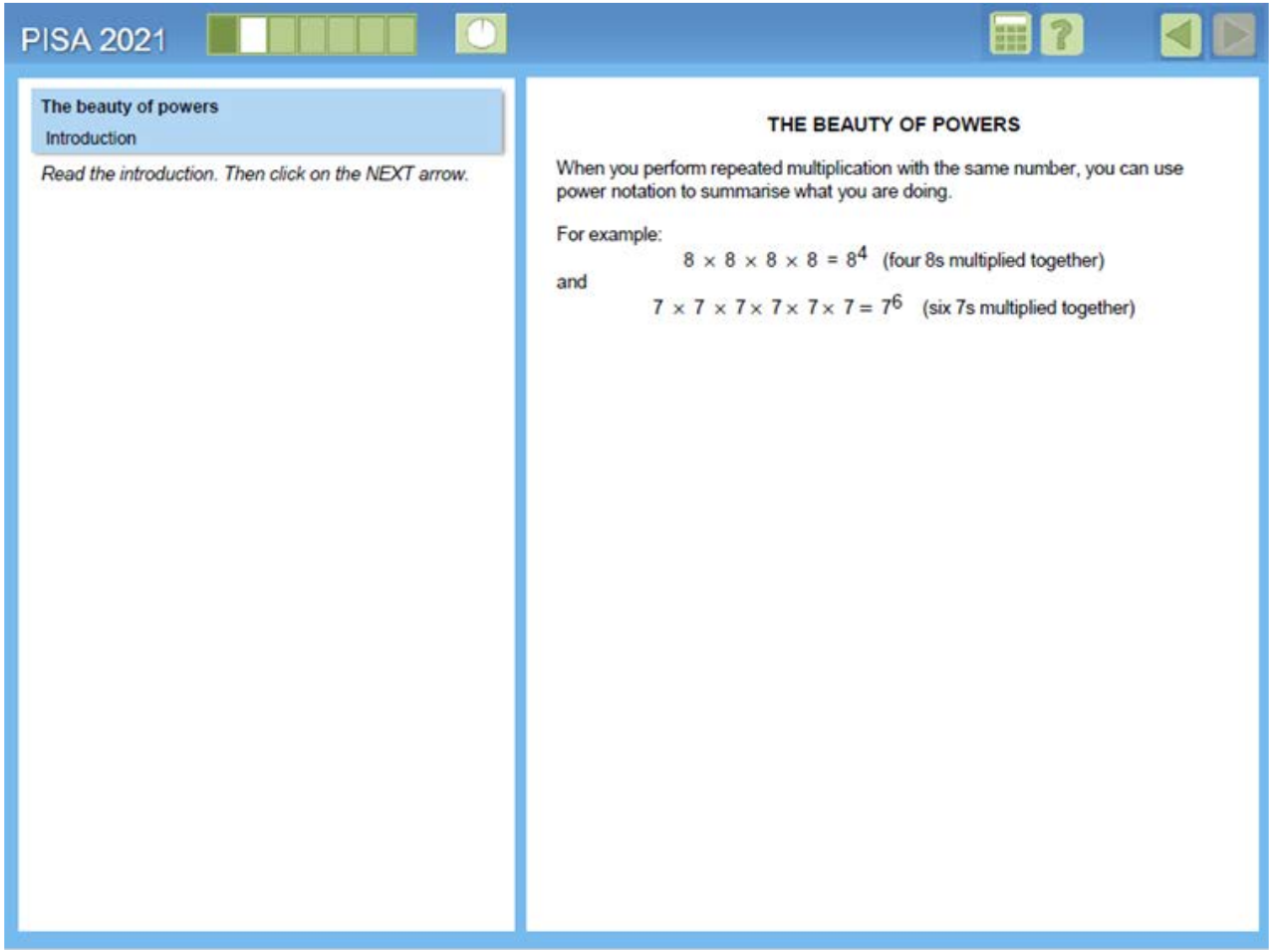


Annex Figure 2.A.5. Smartphone use - Question 3/3 Hourly wage

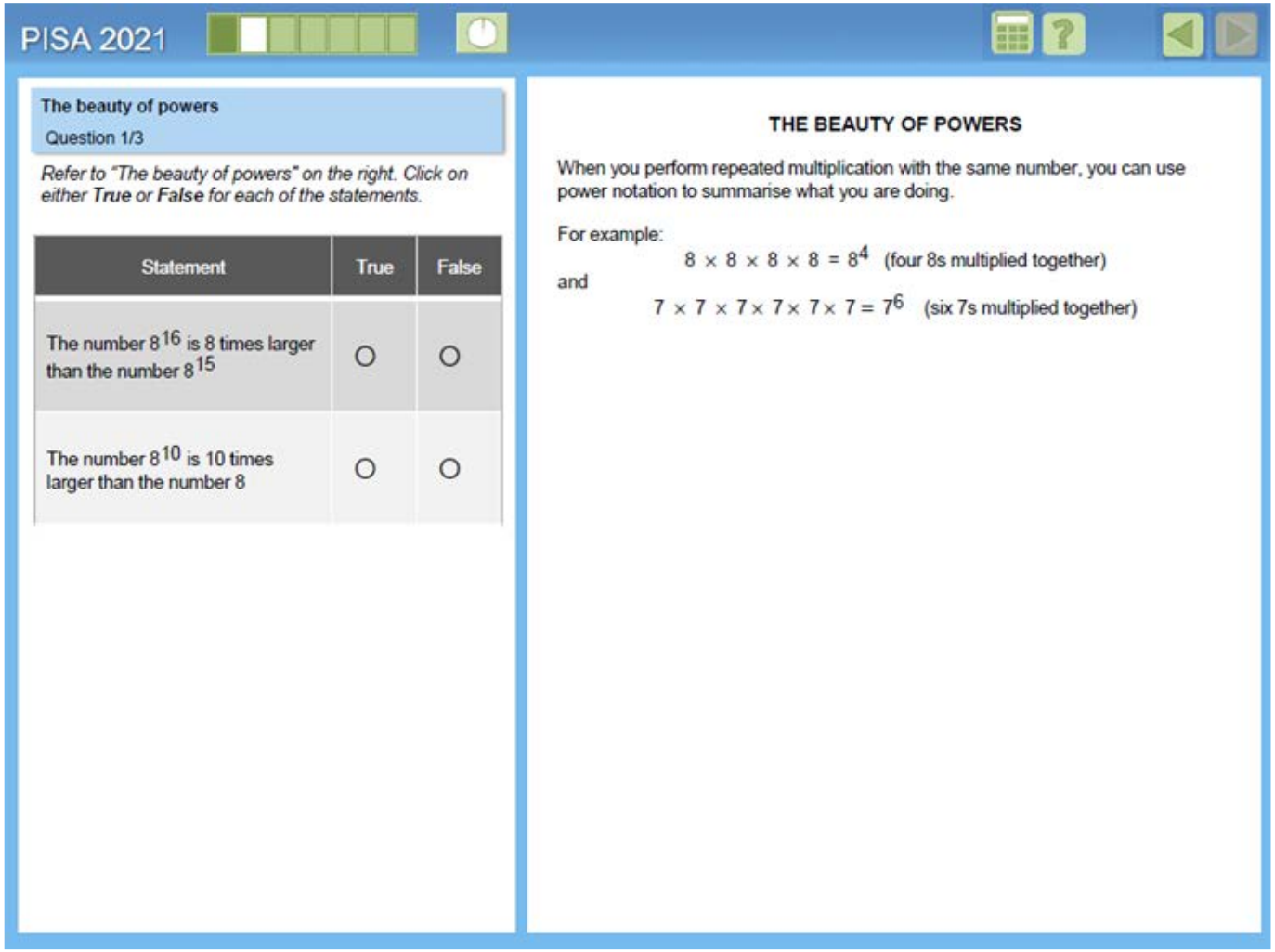


The beauty of powers

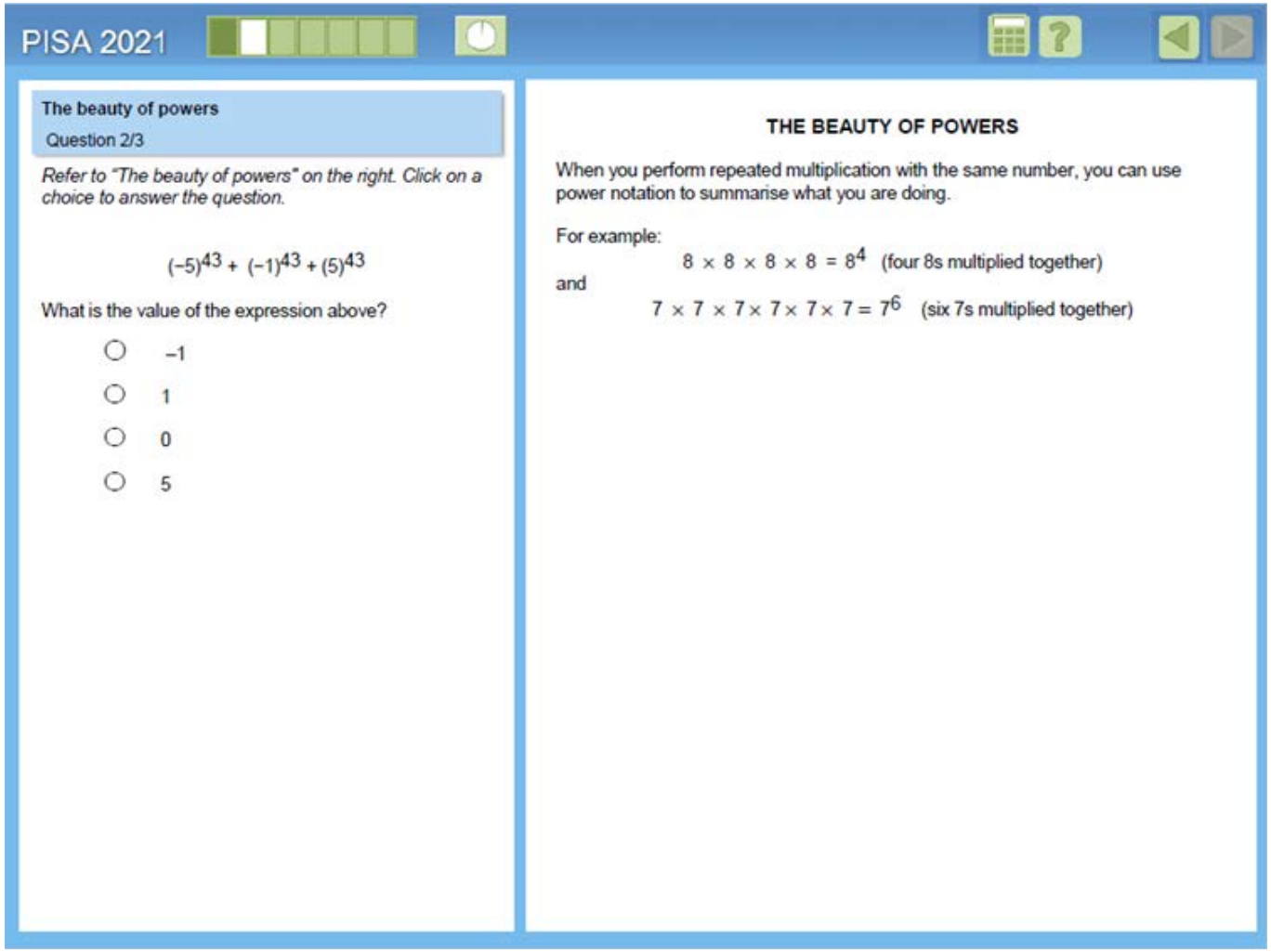
Annex Figure 2.A.6. The beauty of powers - Introduction



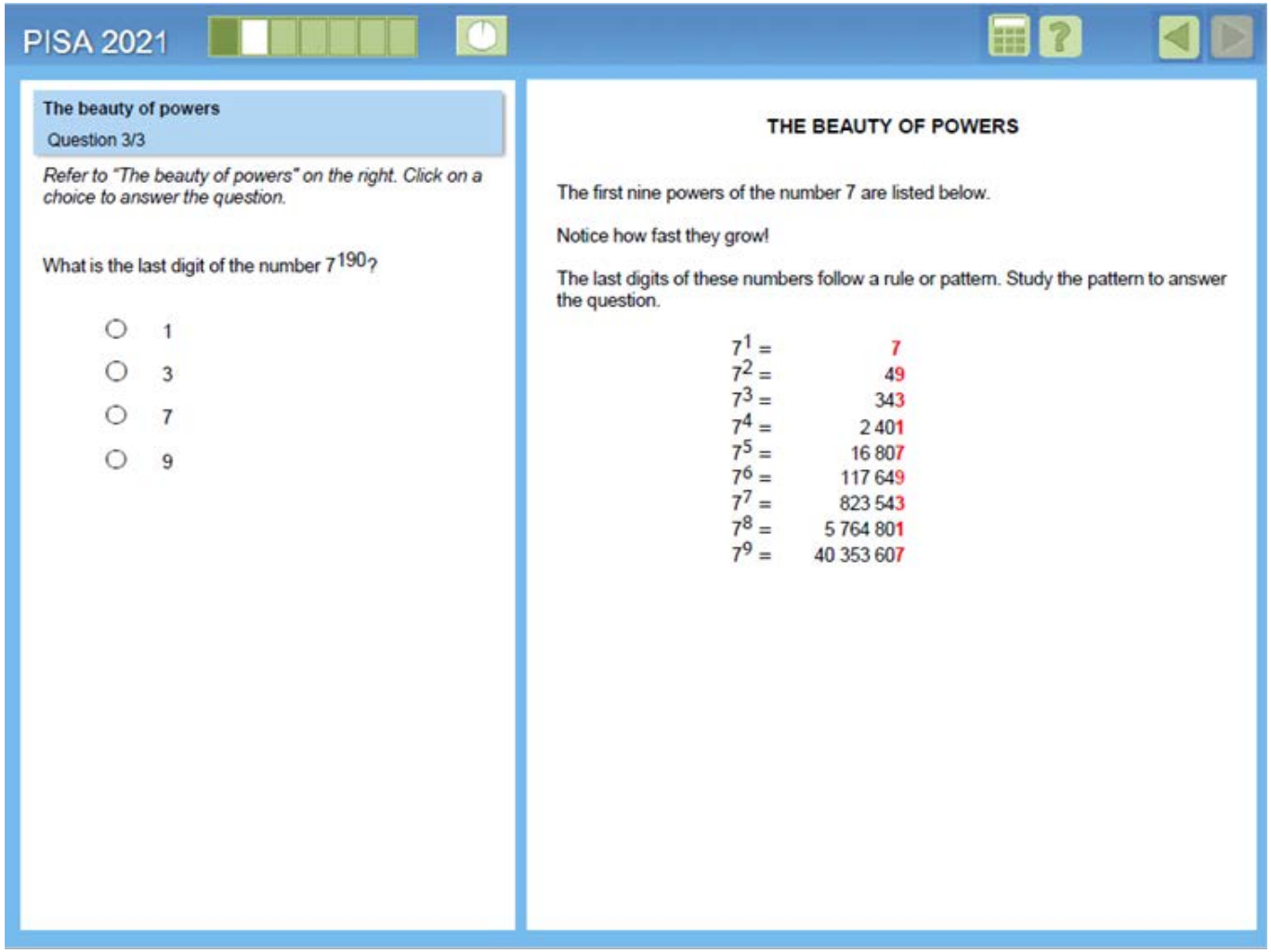
Annex Figure 2.A.7. The beauty of powers - Question 1/3



Annex Figure 2.A.8. The beauty of powers - Question 2/3

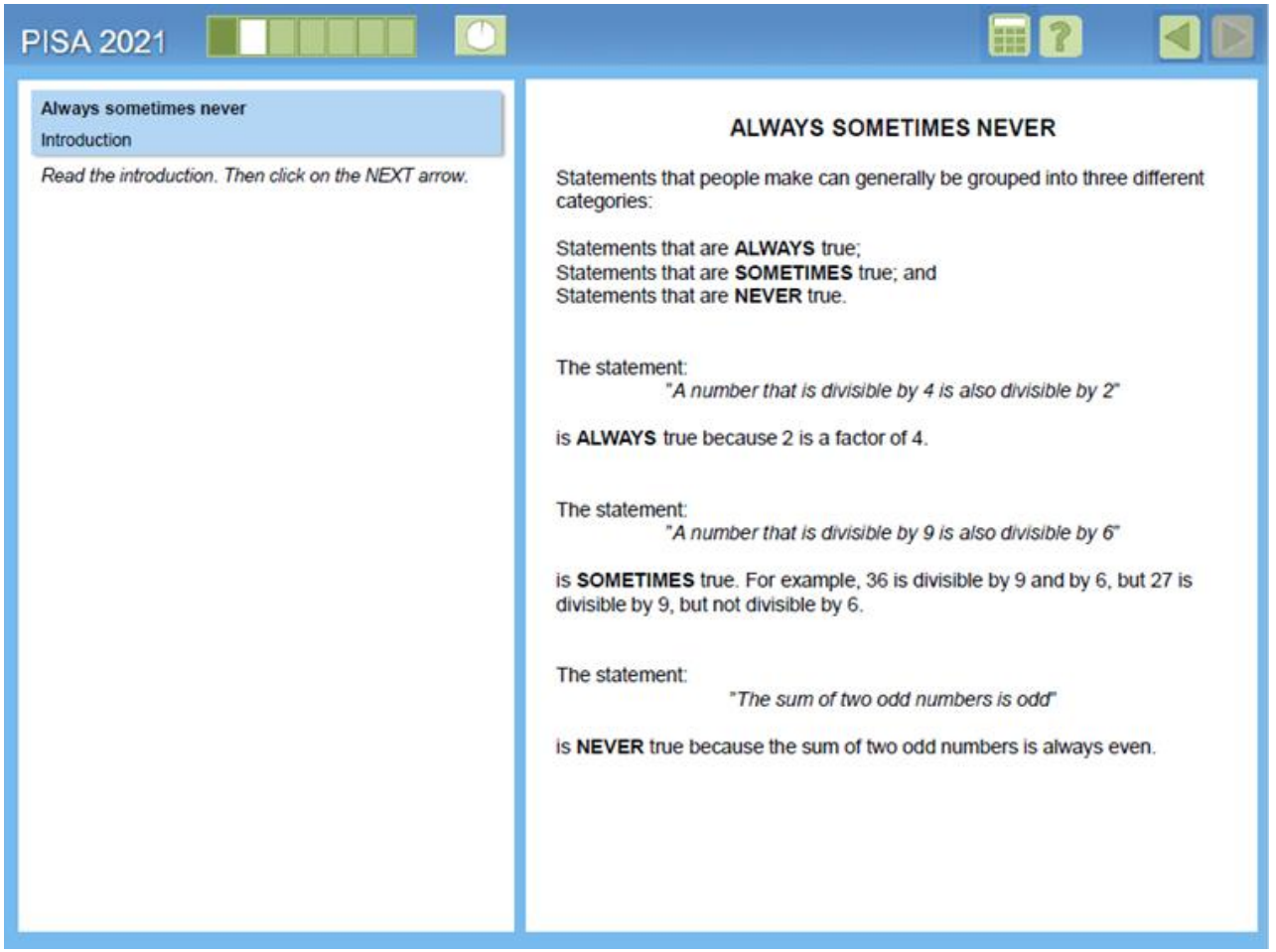


Annex Figure 2.A.9. The beauty of powers - Question 3/3

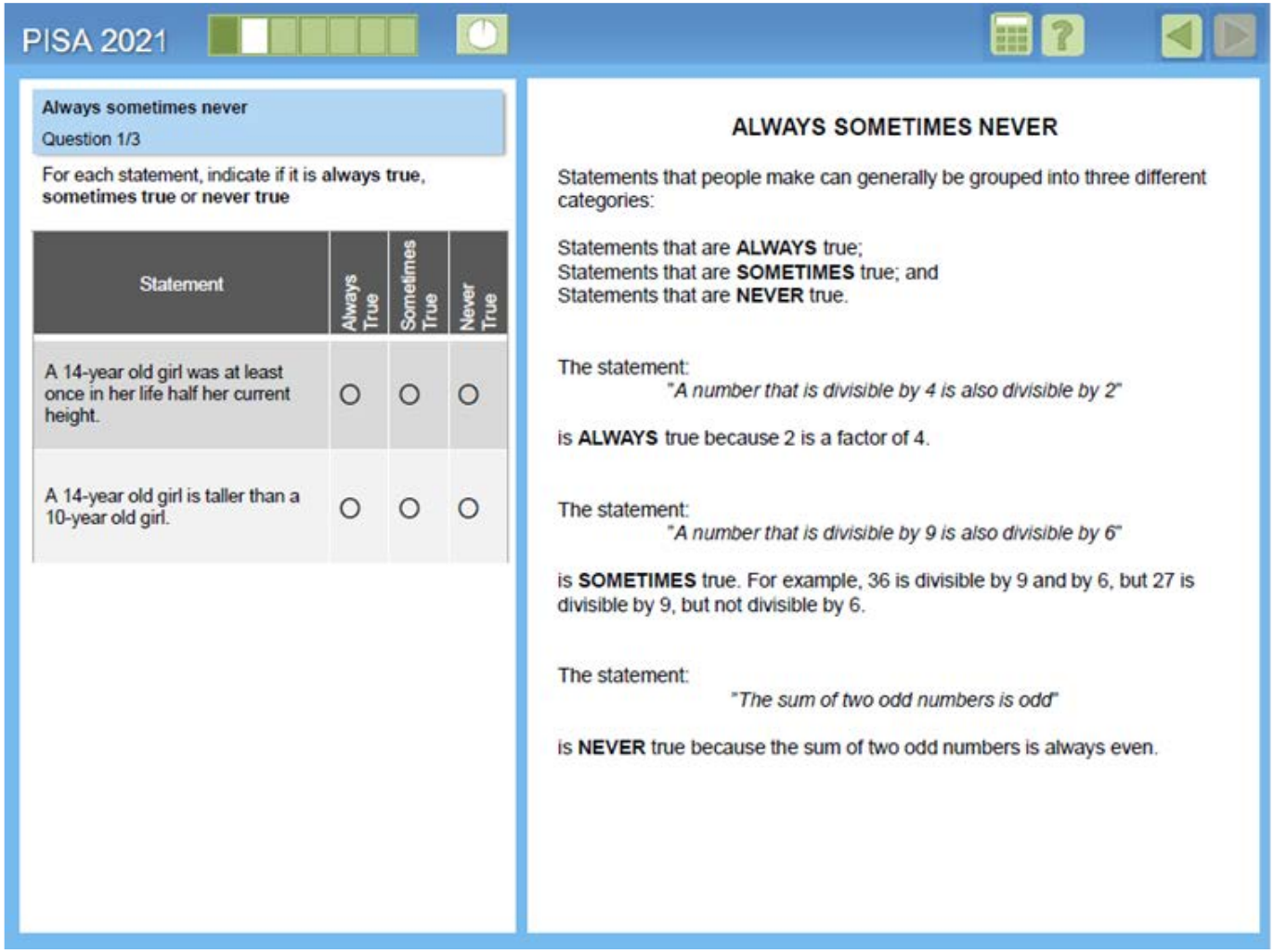


Always sometimes never

Annex Figure 2.A.10. Always sometimes never - Introduction



Annex Figure 2.A.11. Always sometimes never - Question 1/3

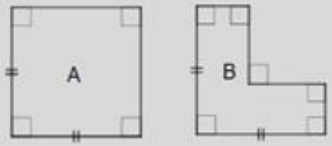


Annex Figure 2.A.12. Always sometimes never - Question 2/3

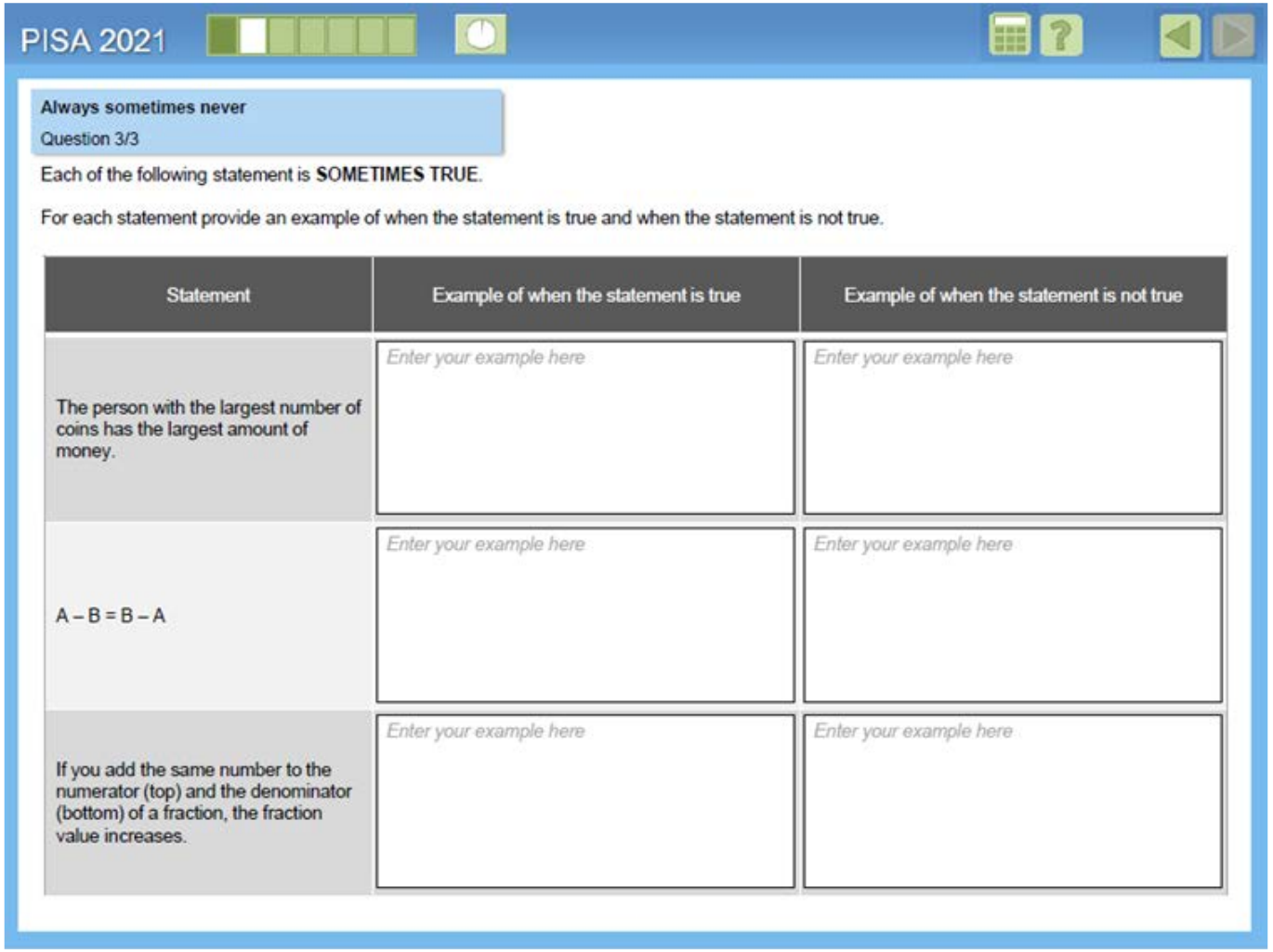
PISA 2021

Always sometimes never
Question 2/3

For each statement, indicate if it is **always true**, **sometimes true** or **never true**

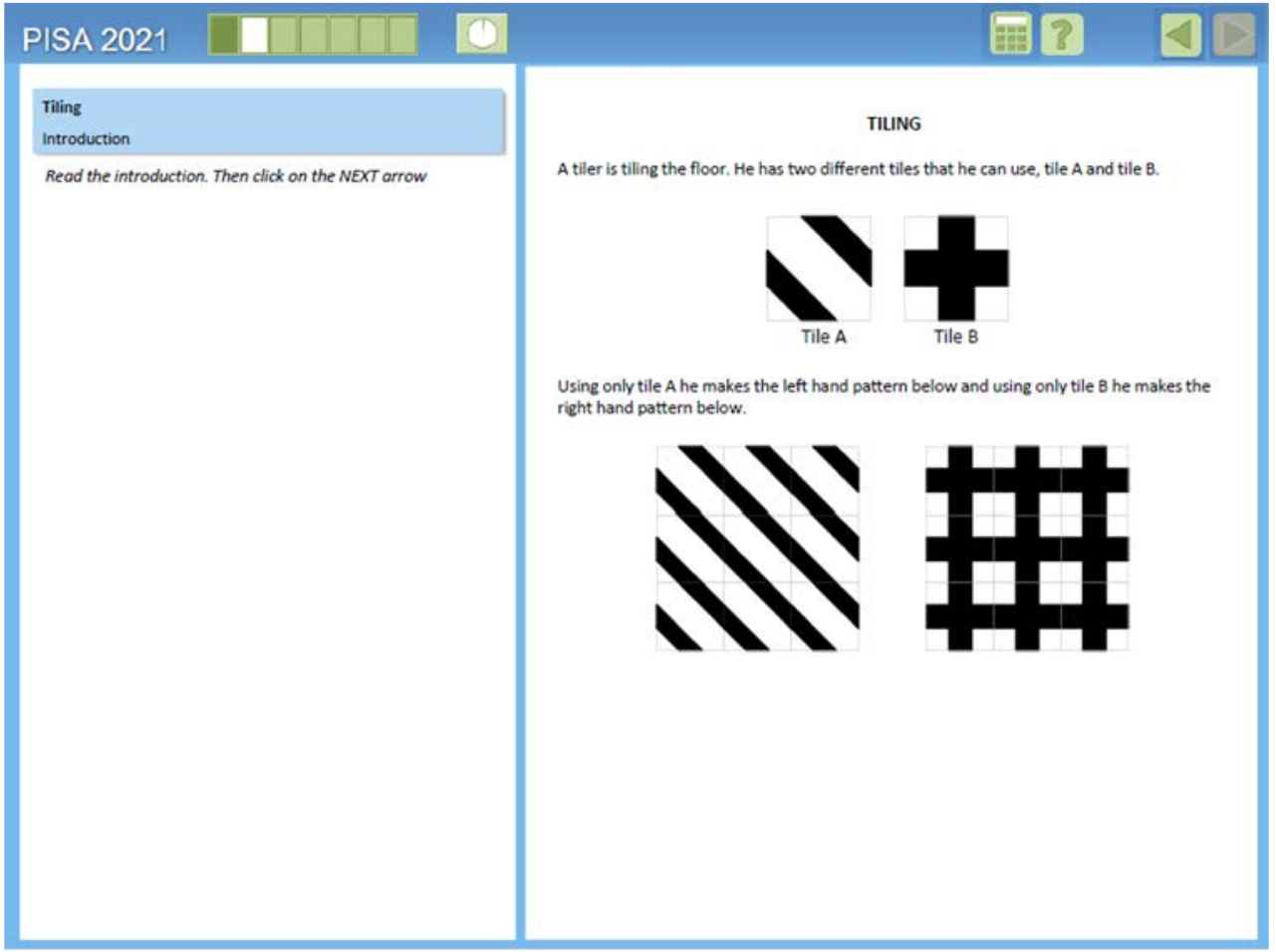
Statement	Always True	Sometimes True	Never True
When a whole number is multiplied by itself the answer is even.	○	○	○
Doubling a whole number produces an even number.	○	○	○
Halving an odd whole number produces a whole number	○	○	○
$3x + 1 = \frac{6x + 2}{2}$	○	○	○
 The perimeter of figure A is greater than the perimeter of figure B.	○	○	○
If a coin is flipped 50 times it will land heads up 25 times.	○	○	○

Annex Figure 2.A.13. Always sometimes never - Question 3/3

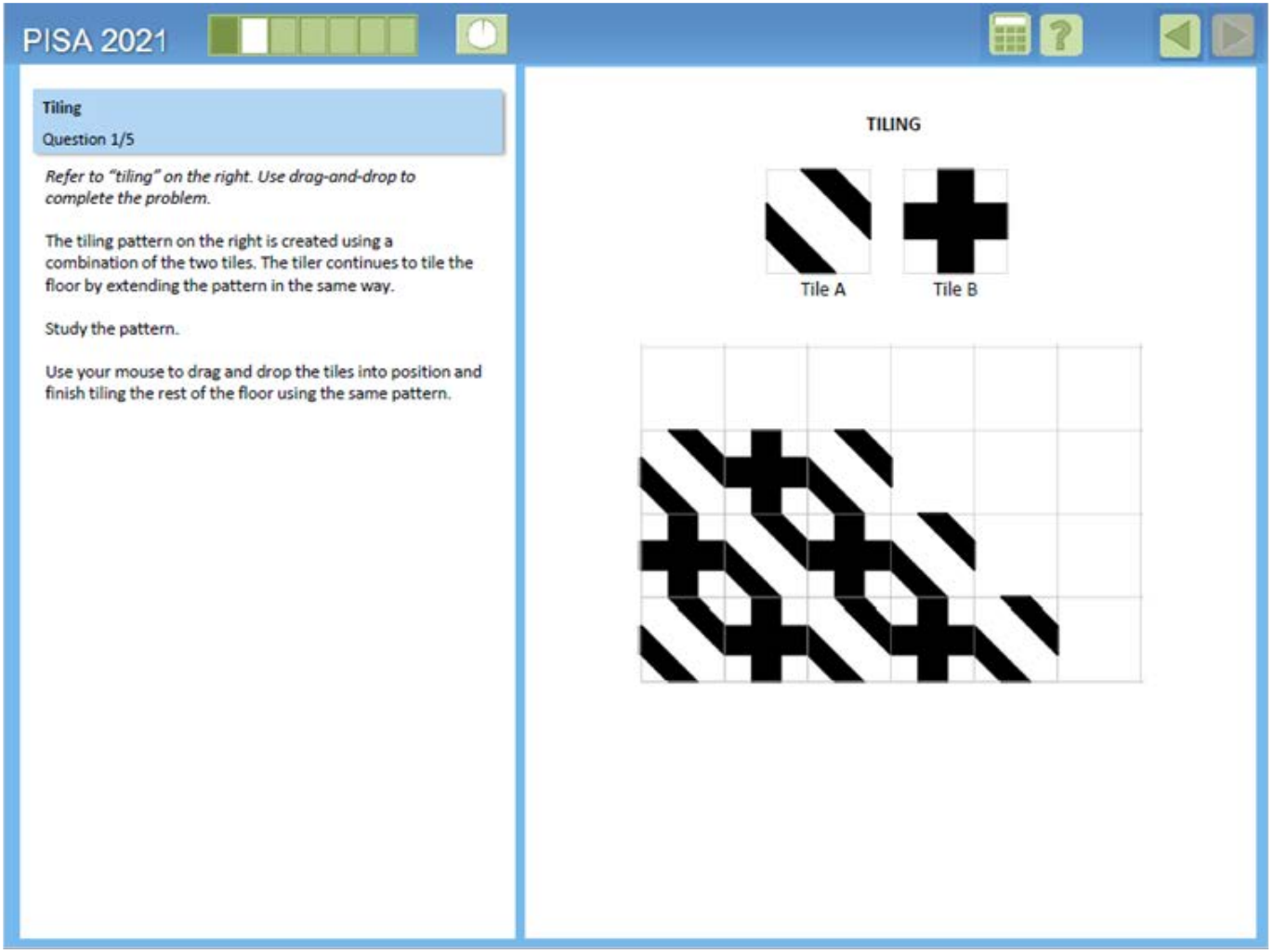


Tiling

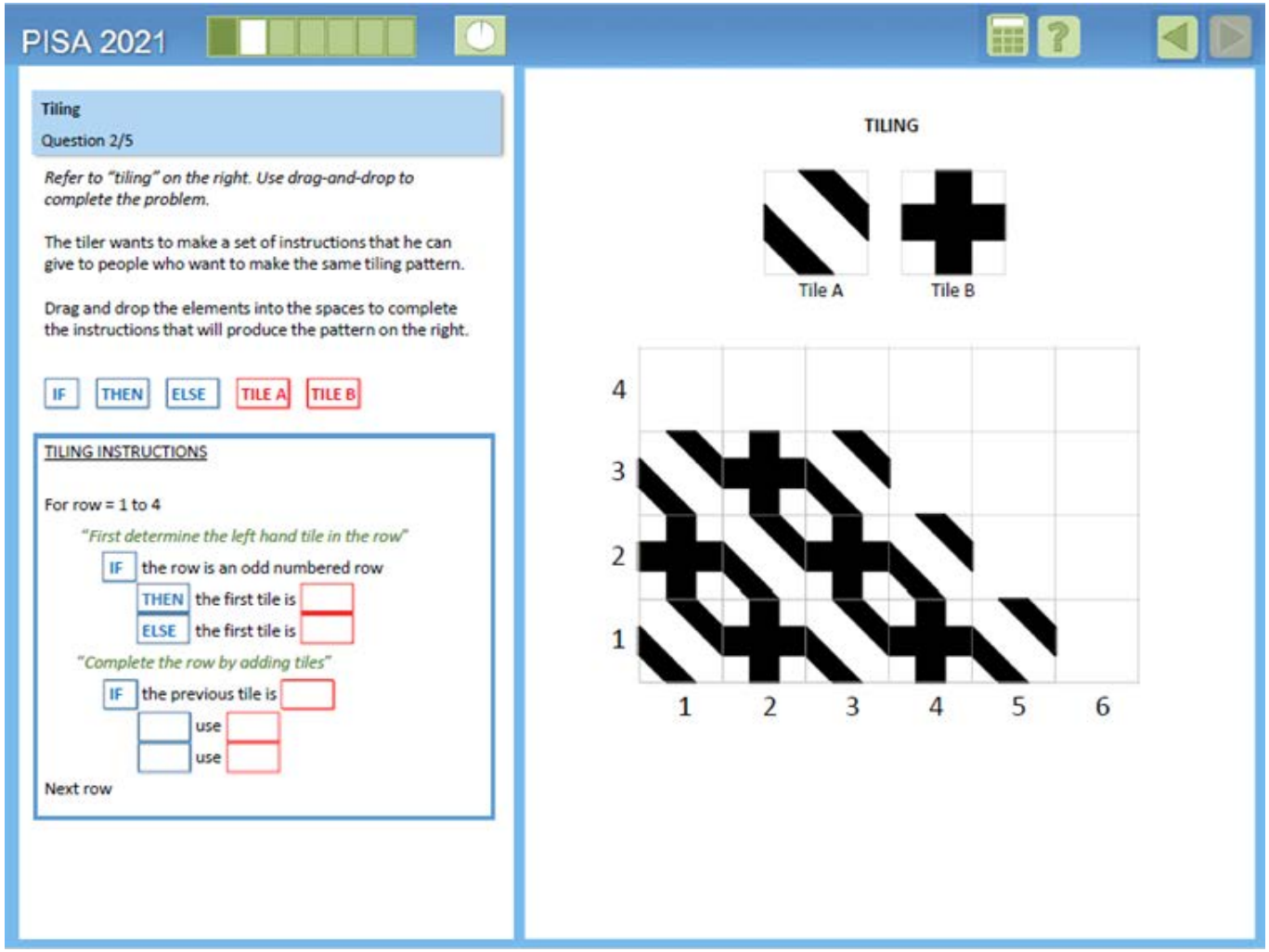
Annex Figure 2.A.14. Tiling - Introduction



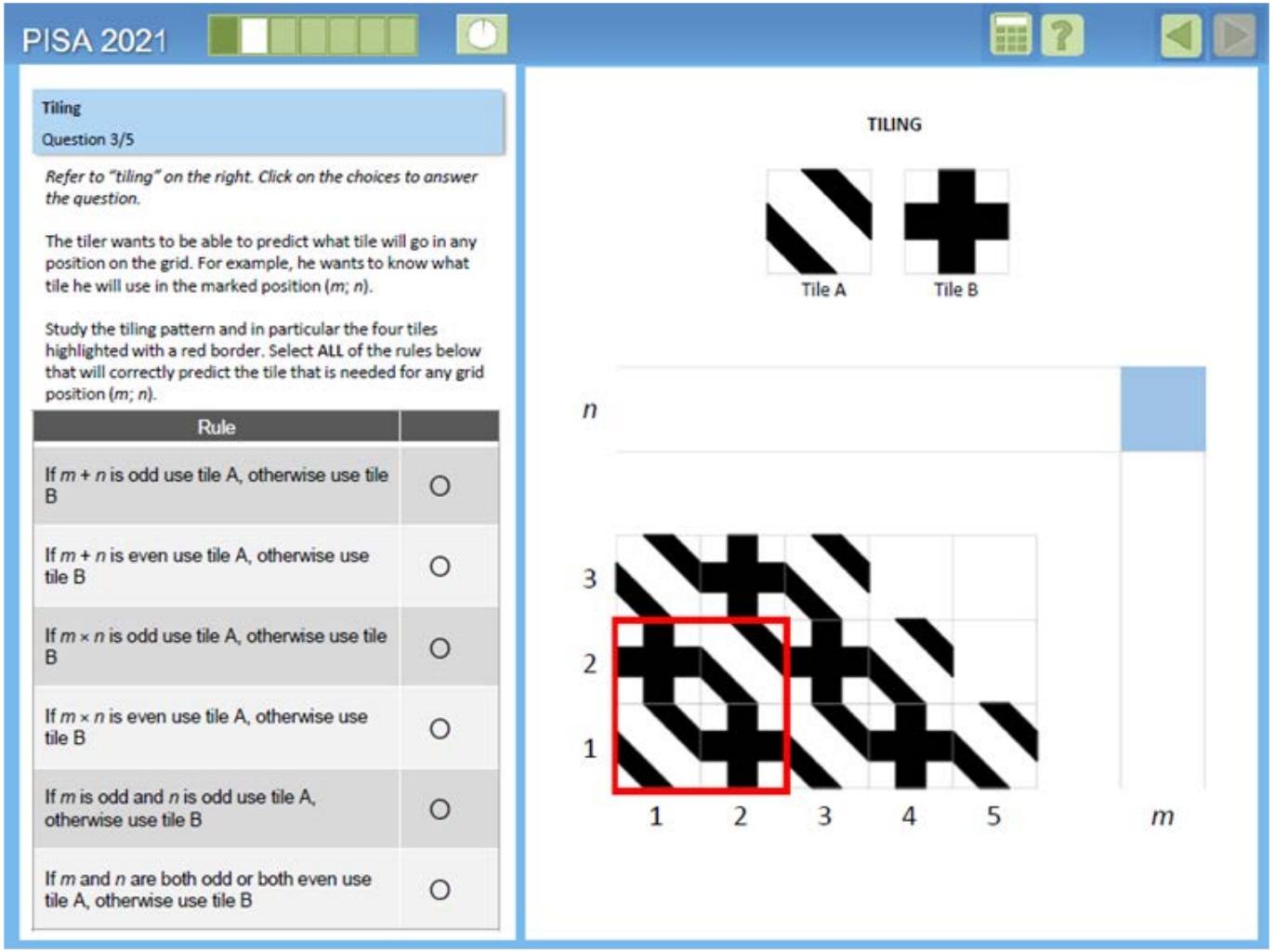
Annex Figure 2.A.15. Tiling – Question 1/5



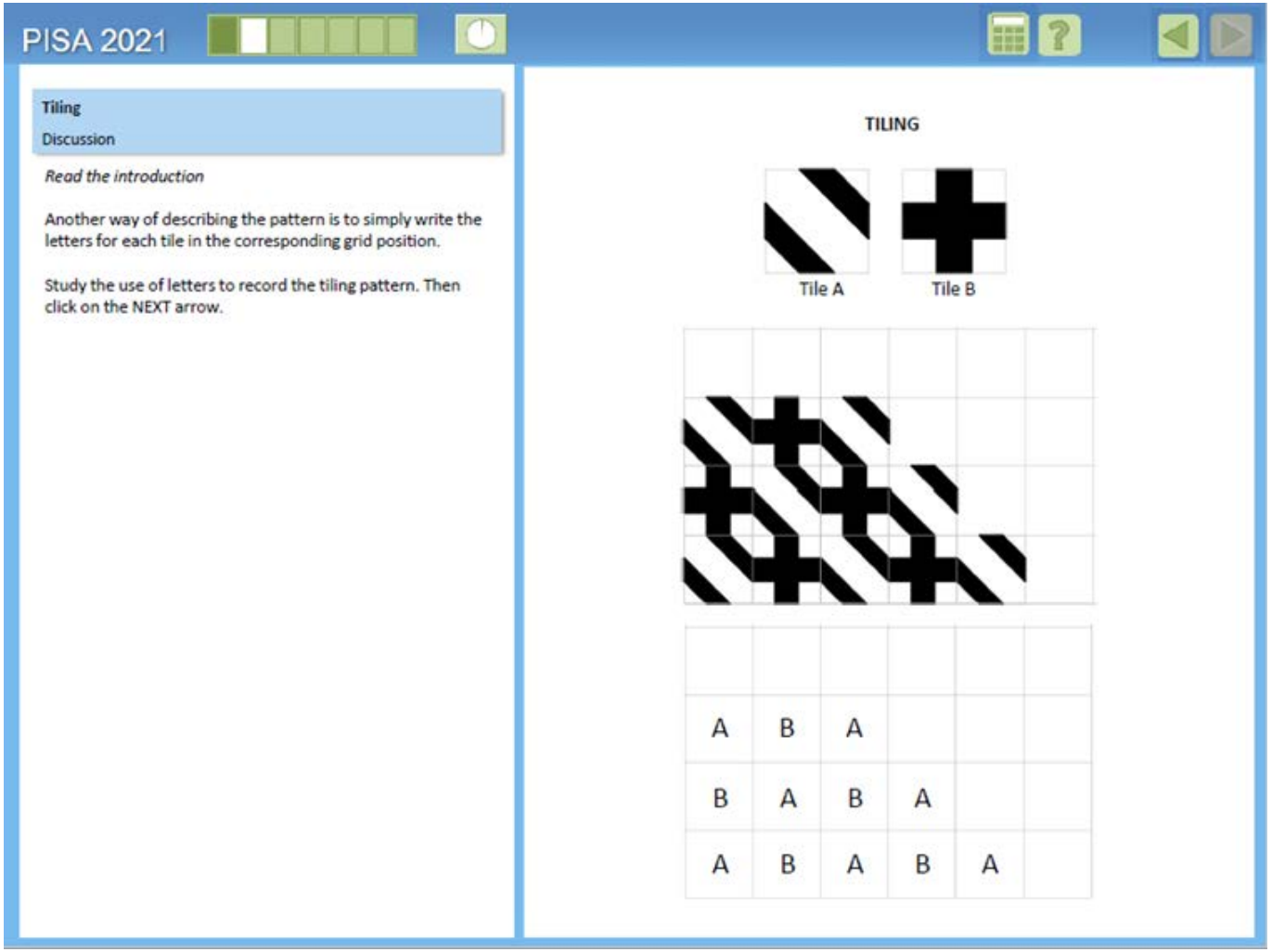
Annex Figure 2.A.16. Tiling – Question 2/5



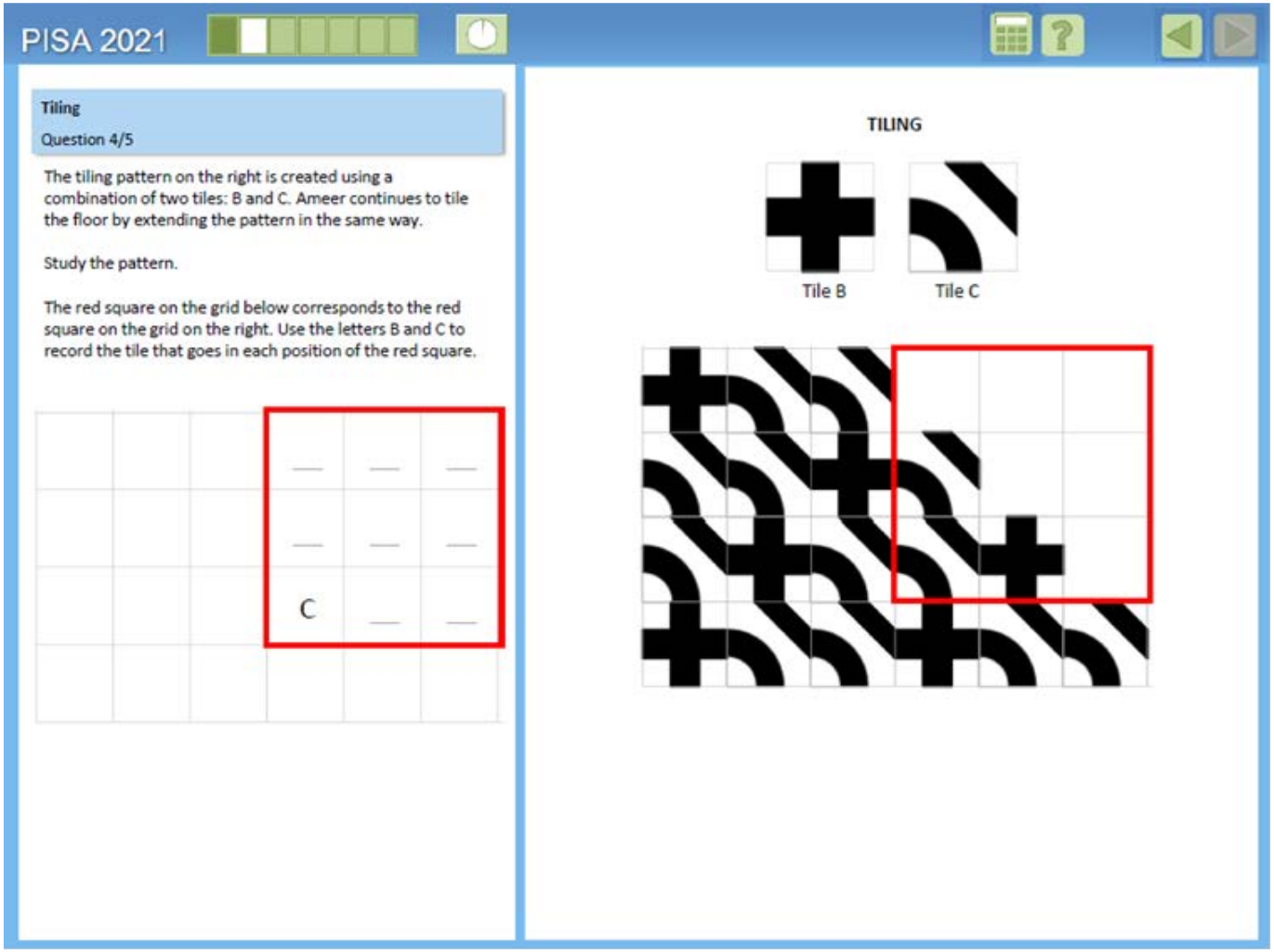
Annex Figure 2.A.17. Tiling – Question 3/5



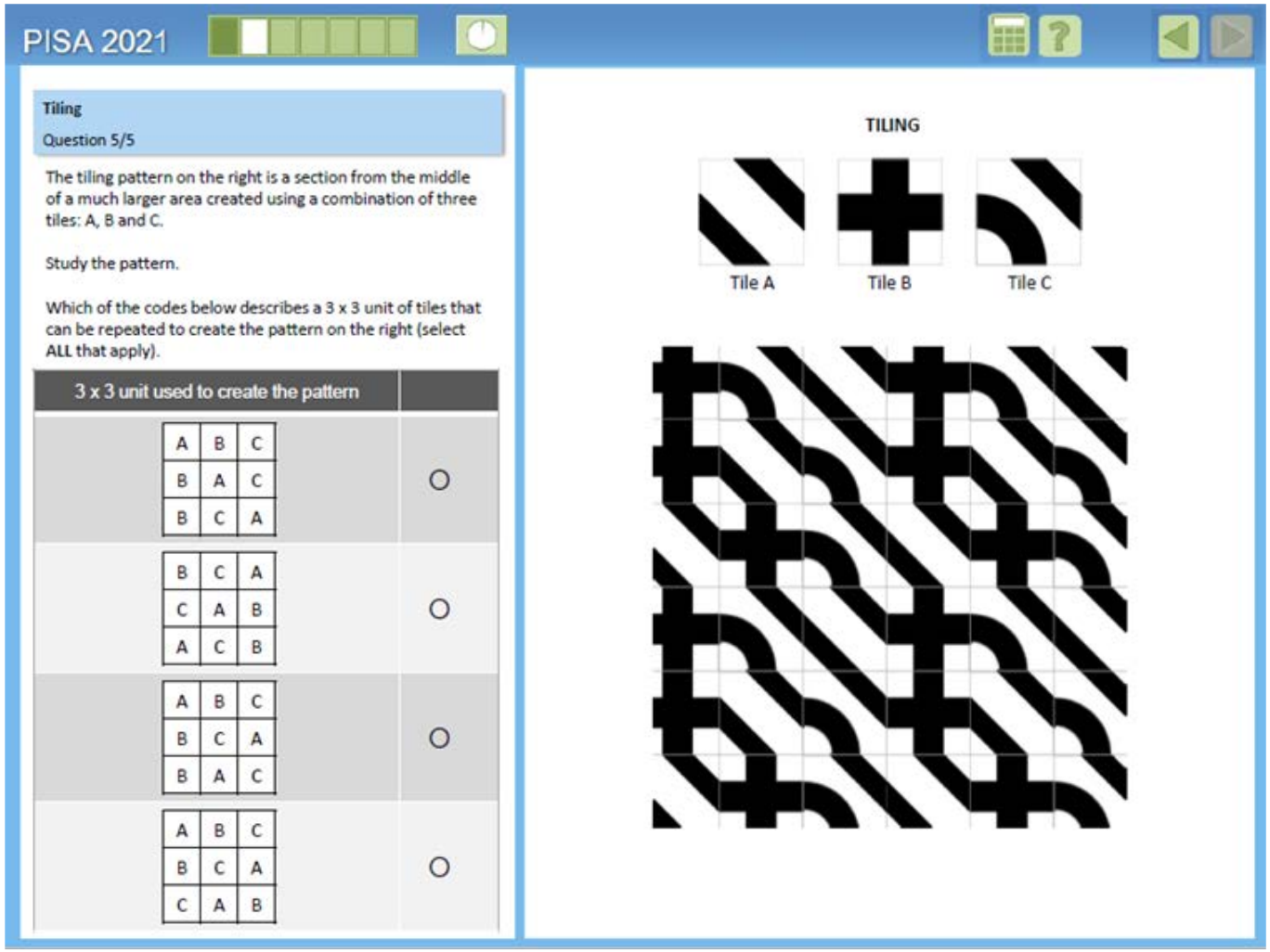
Annex Figure 2.A.18. Tiling - Discussion



Annex Figure 2.A.19. Tiling – Question 4/5



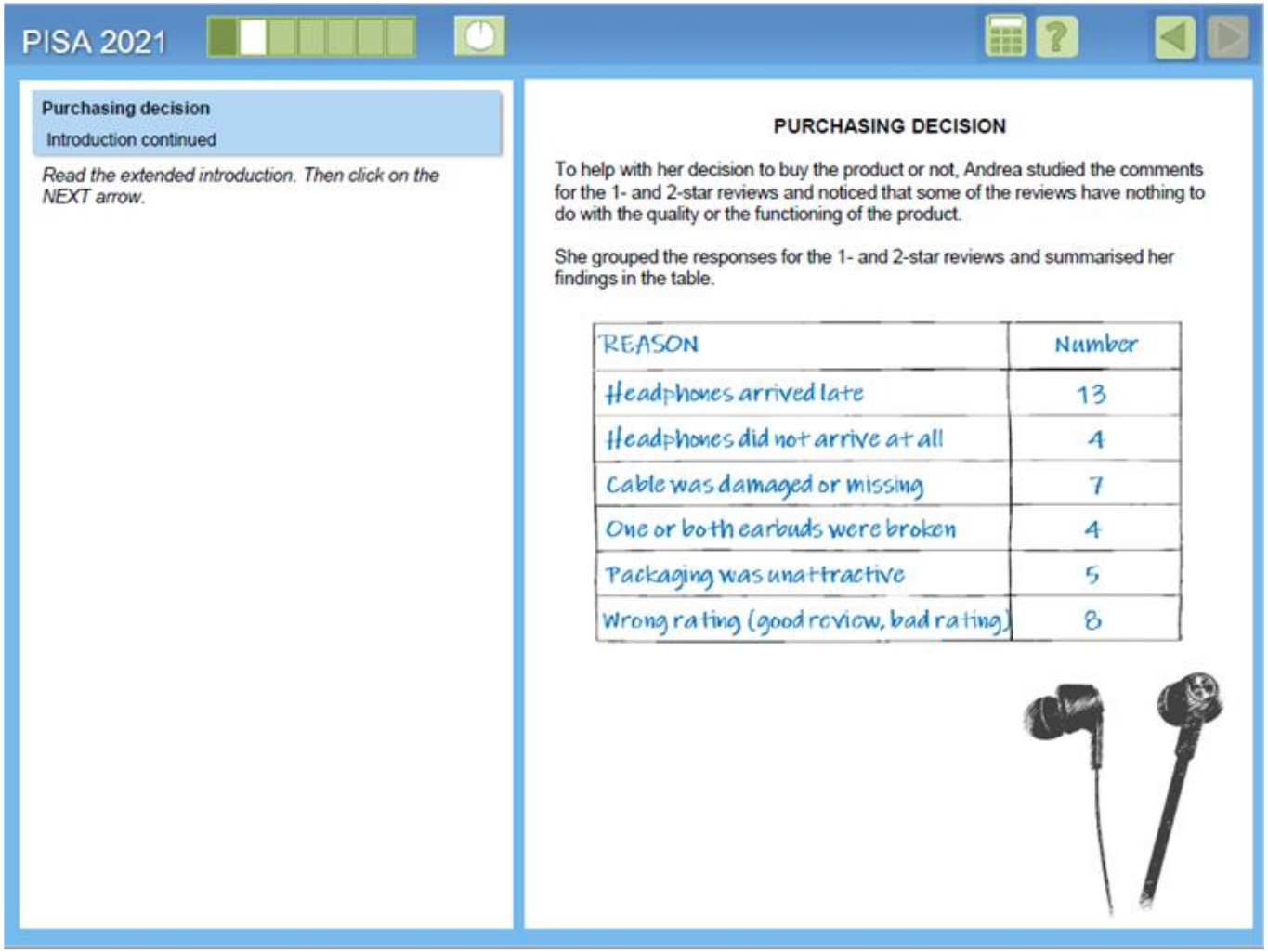
Annex Figure 2.A.20. Tiling – Question 5/5



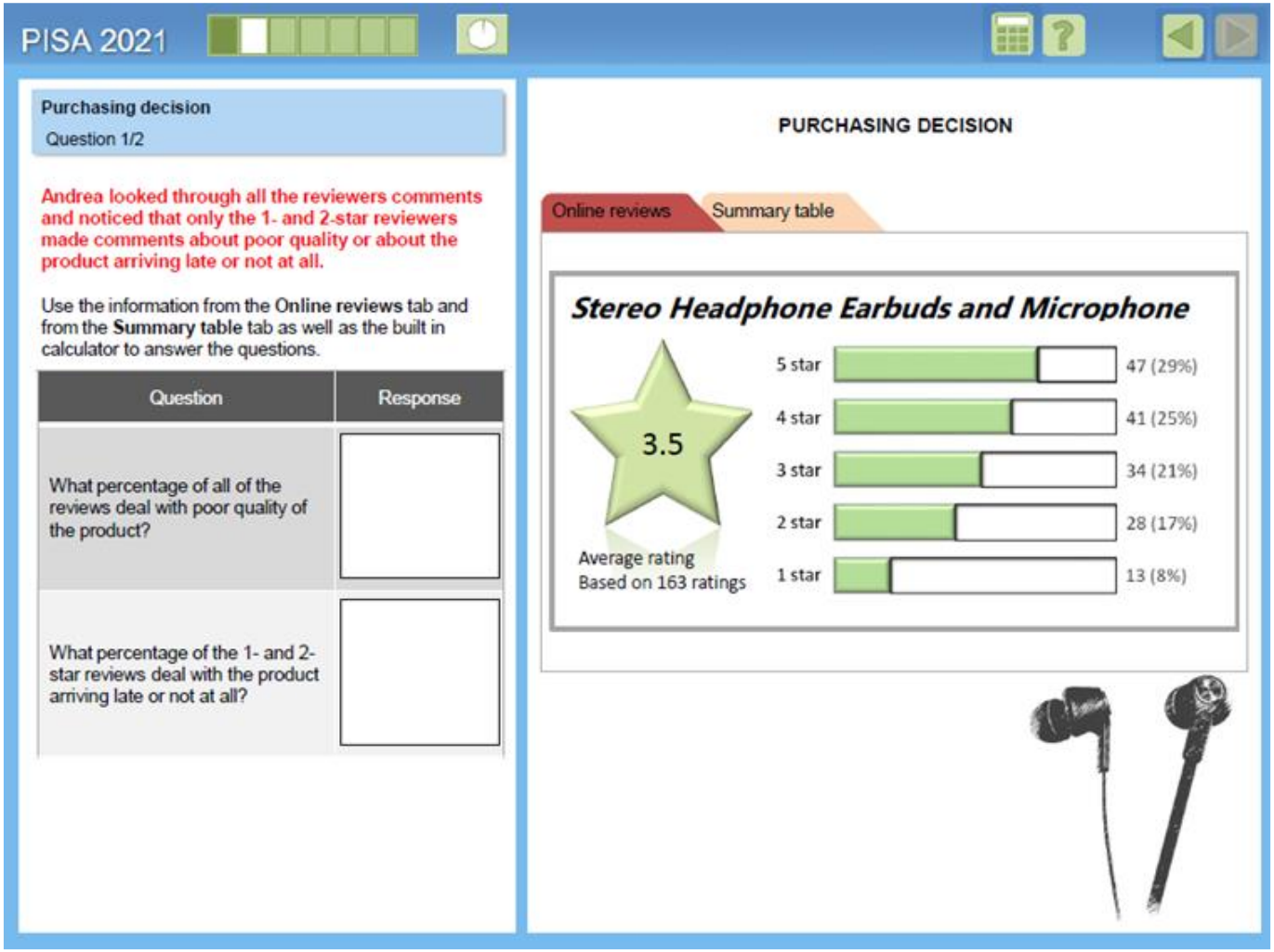
Purchasing decision

Annex Figure 2.A.21. Purchasing decision - Introduction

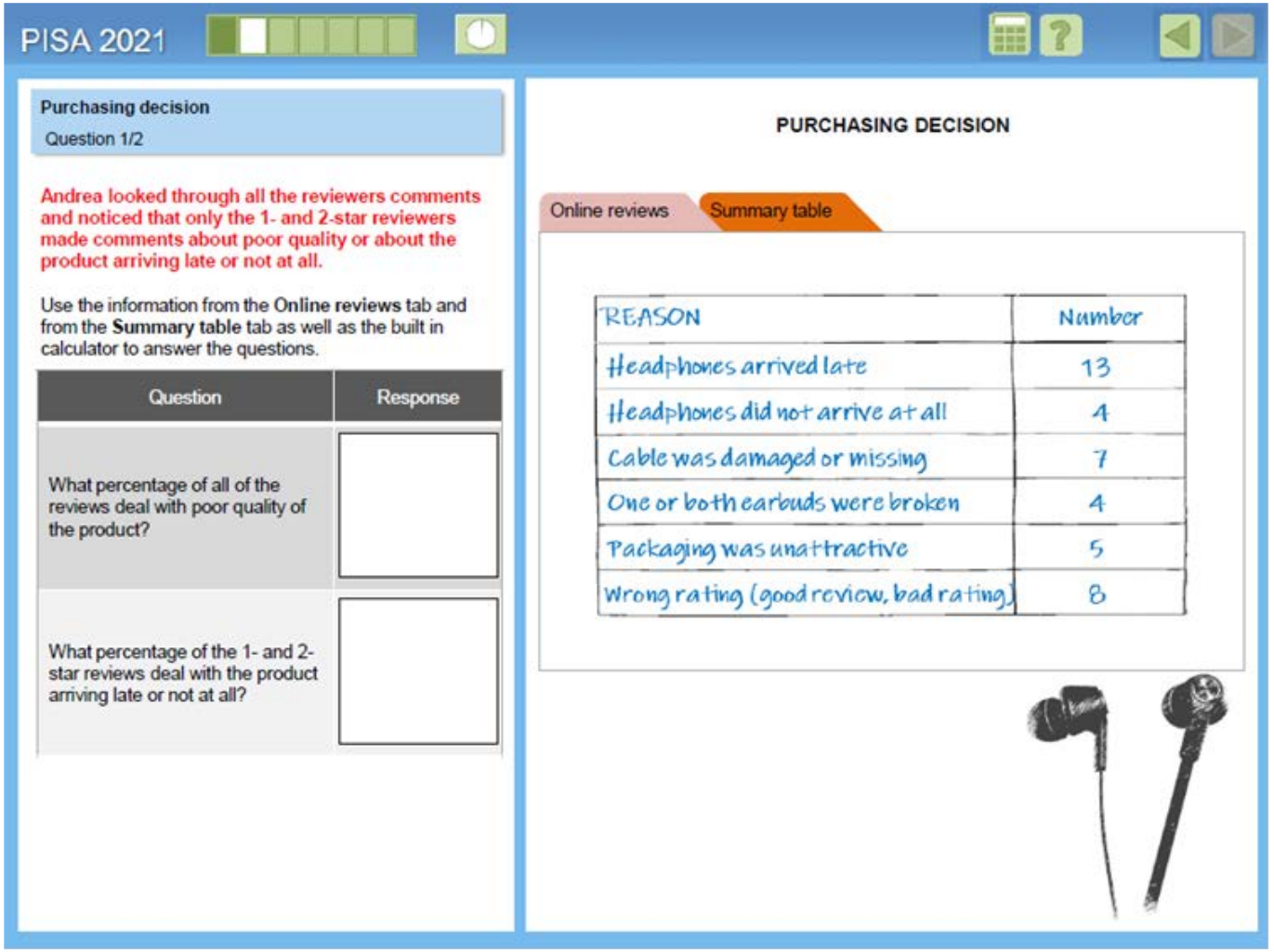
Annex Figure 2.A.22. Purchasing decision - Introduction continued



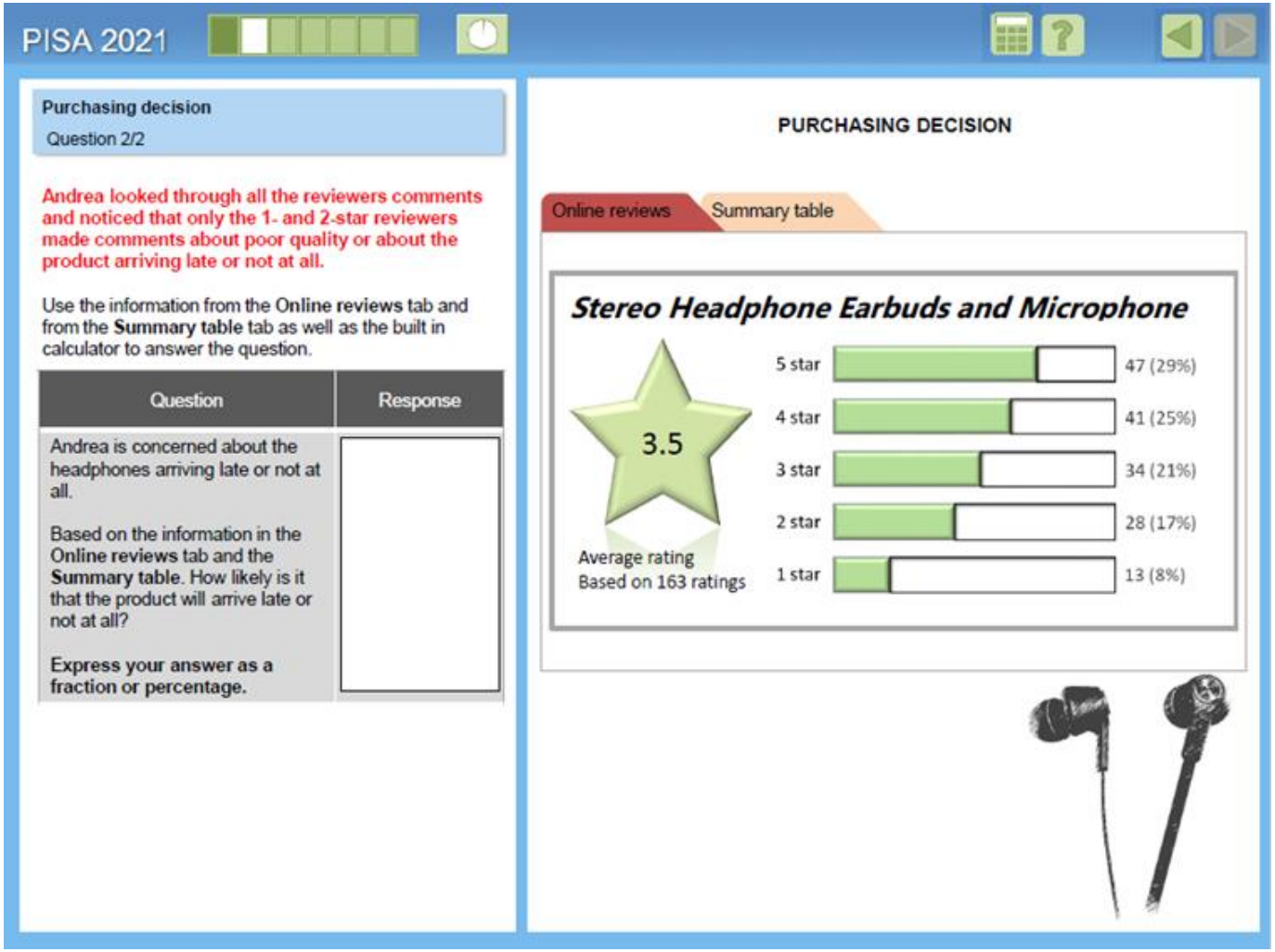
Annex Figure 2.A.23. Purchasing decision – Question 1/2 Online reviews



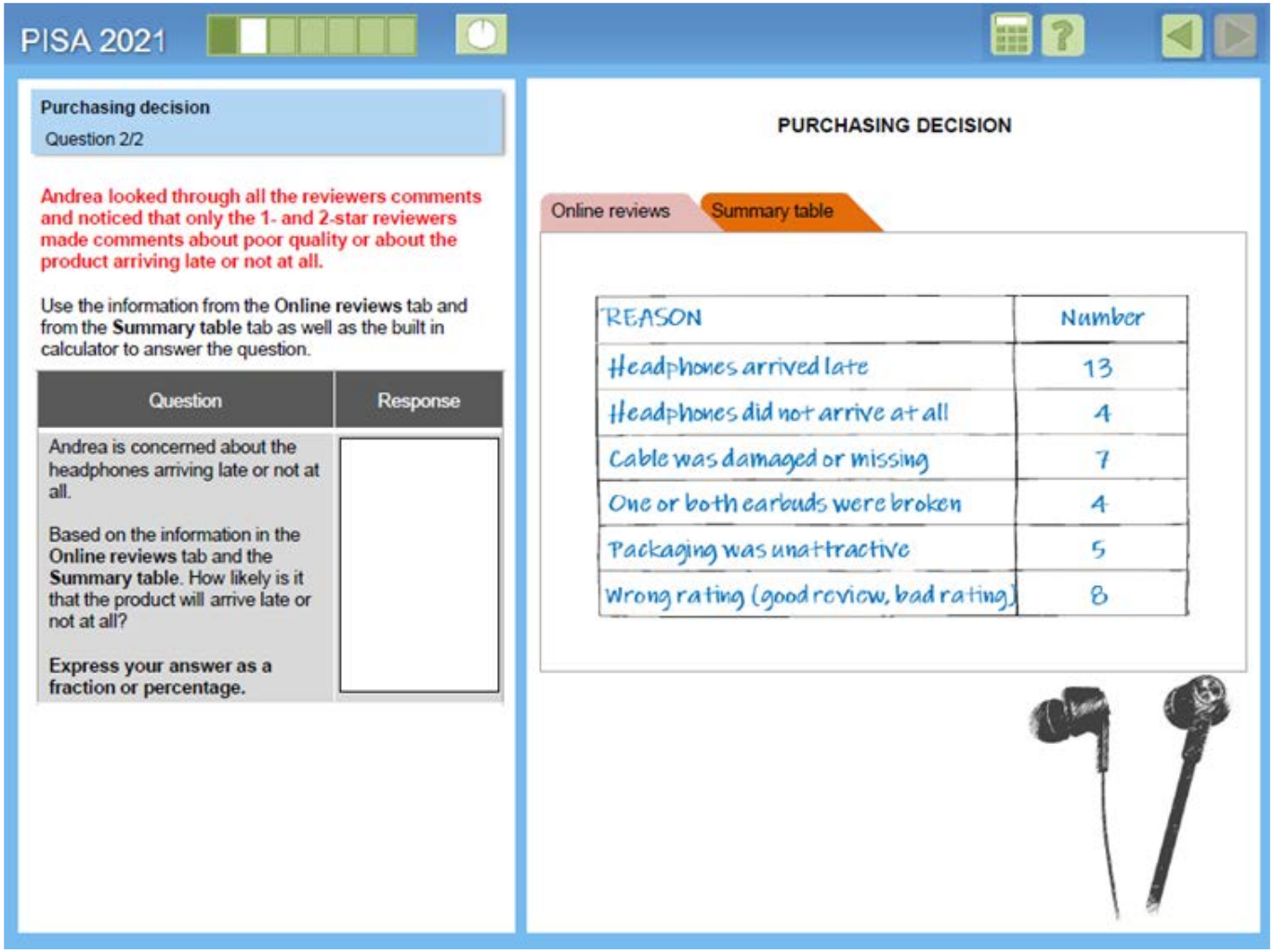
Annex Figure 2.A.24. Purchasing decision – Question 1/2 Summary table



Annex Figure 2.A.25. Purchasing decision – Question 2/2 Online reviews

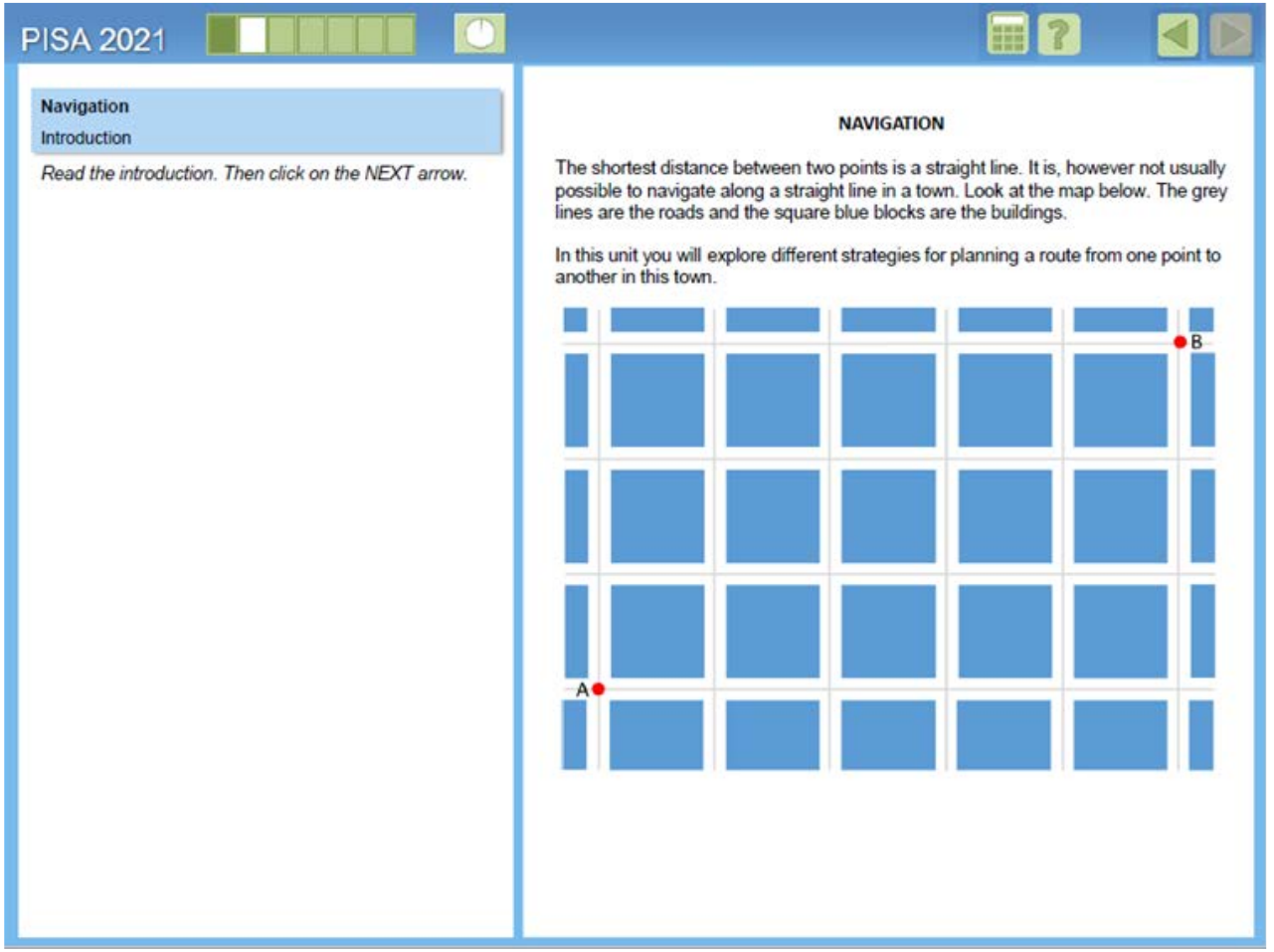


Annex Figure 2.A.26. Purchasing decision – Question 2/2 Summary table

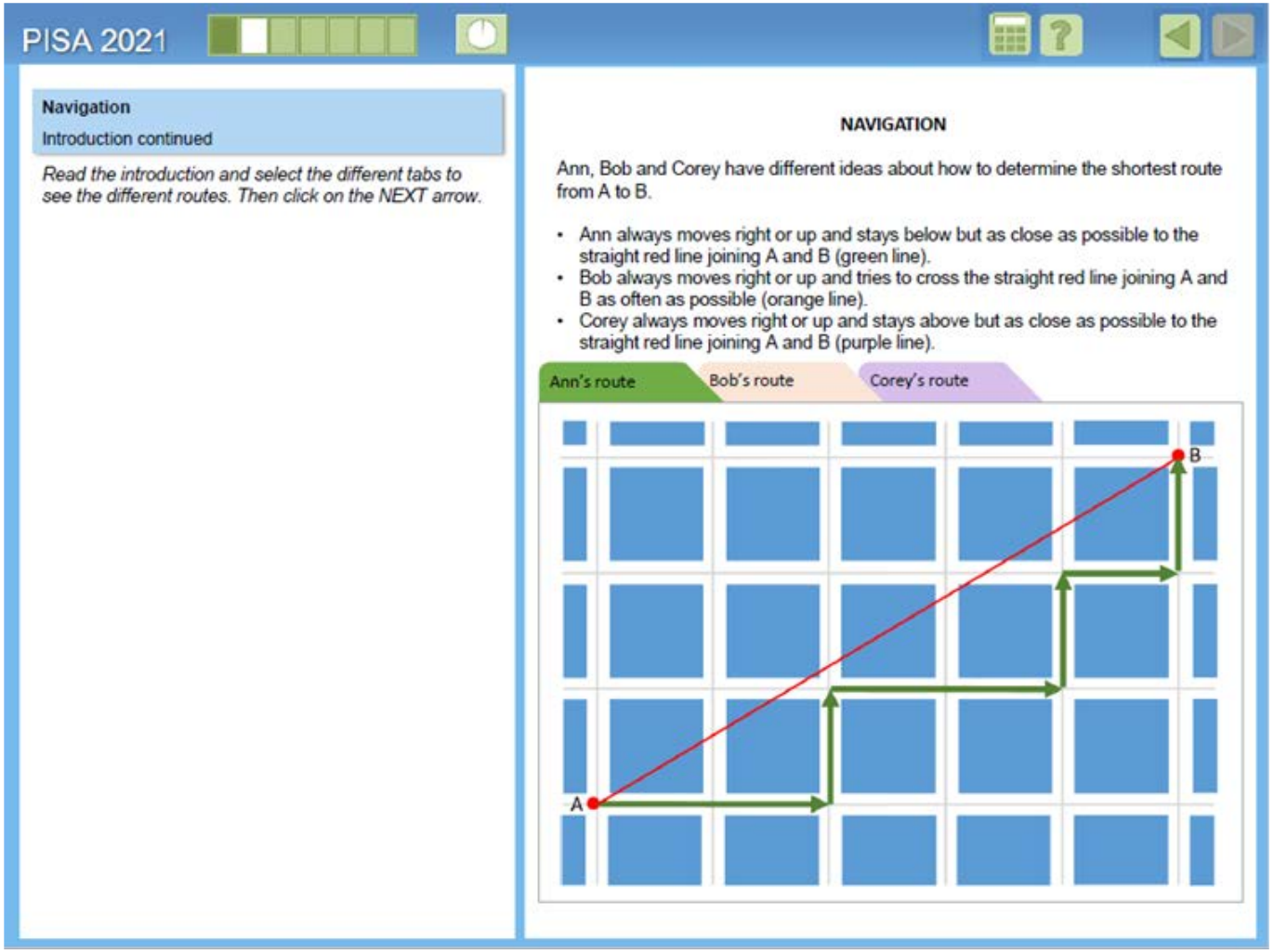


Navigation

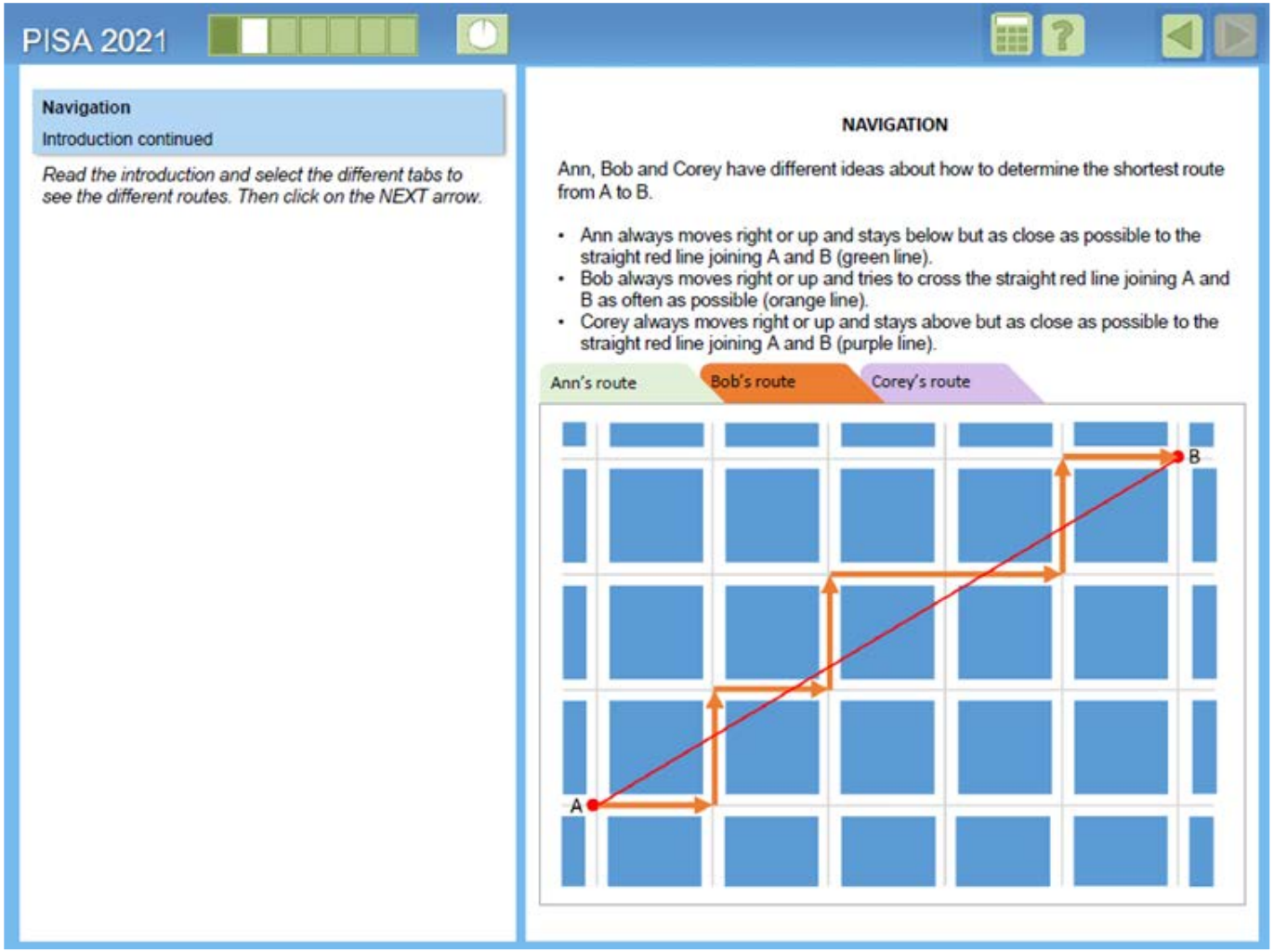
Annex Figure 2.A.27. Navigation - Introduction



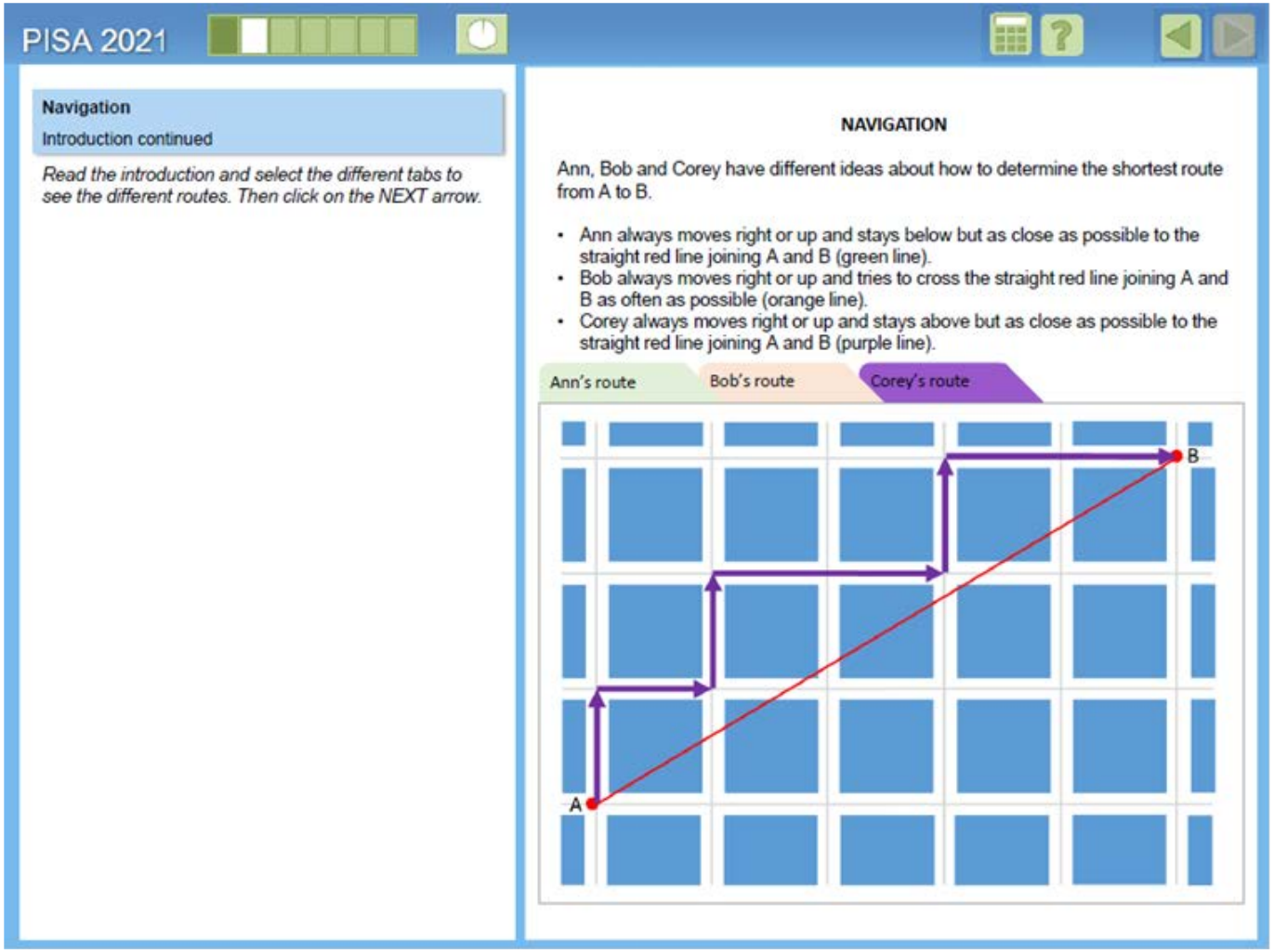
Annex Figure 2.A.28. Navigation – Introduction **continued Ann's route**



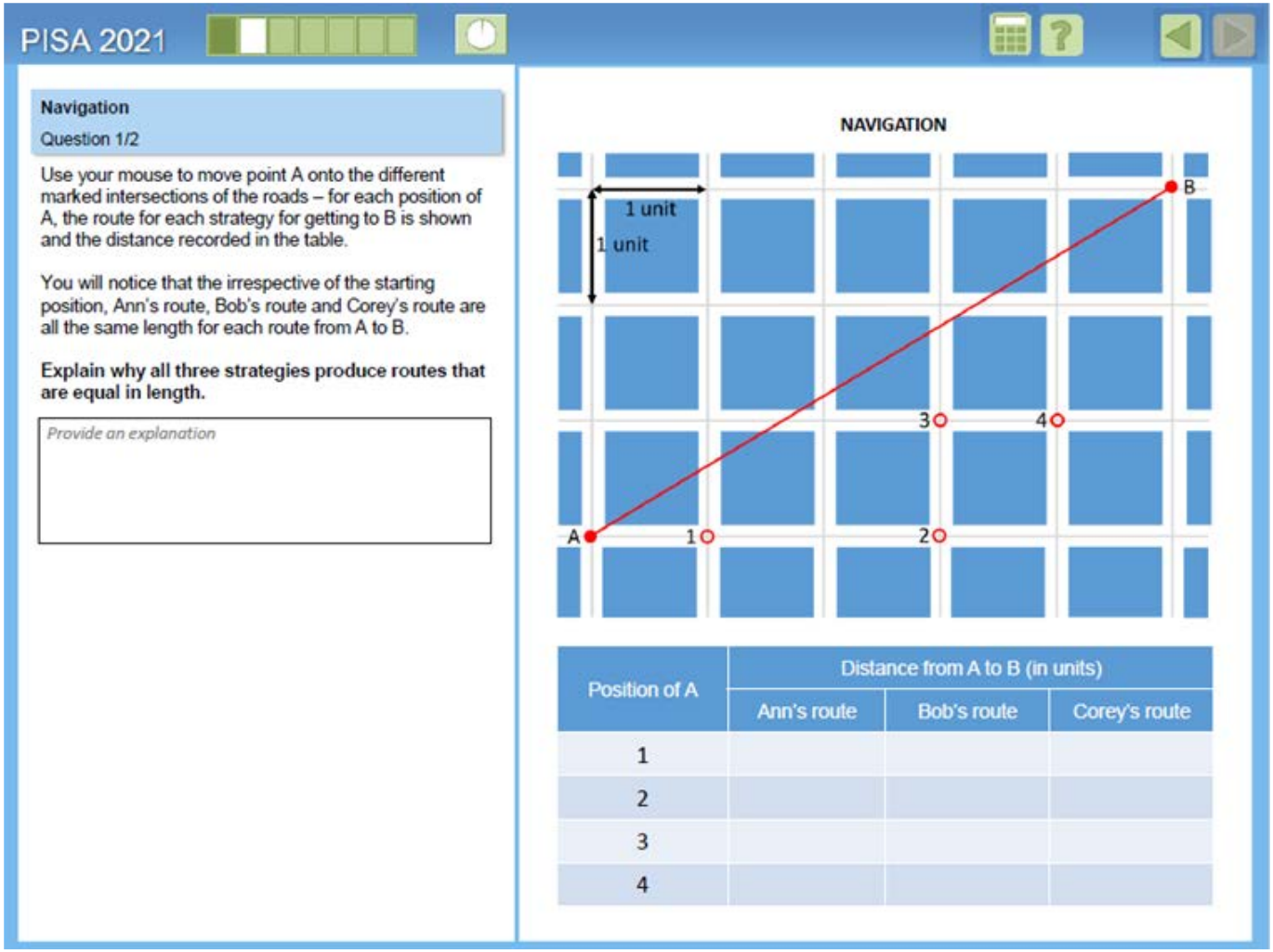
Annex Figure 2.A.29. Navigation – Introduction continued Bob's route



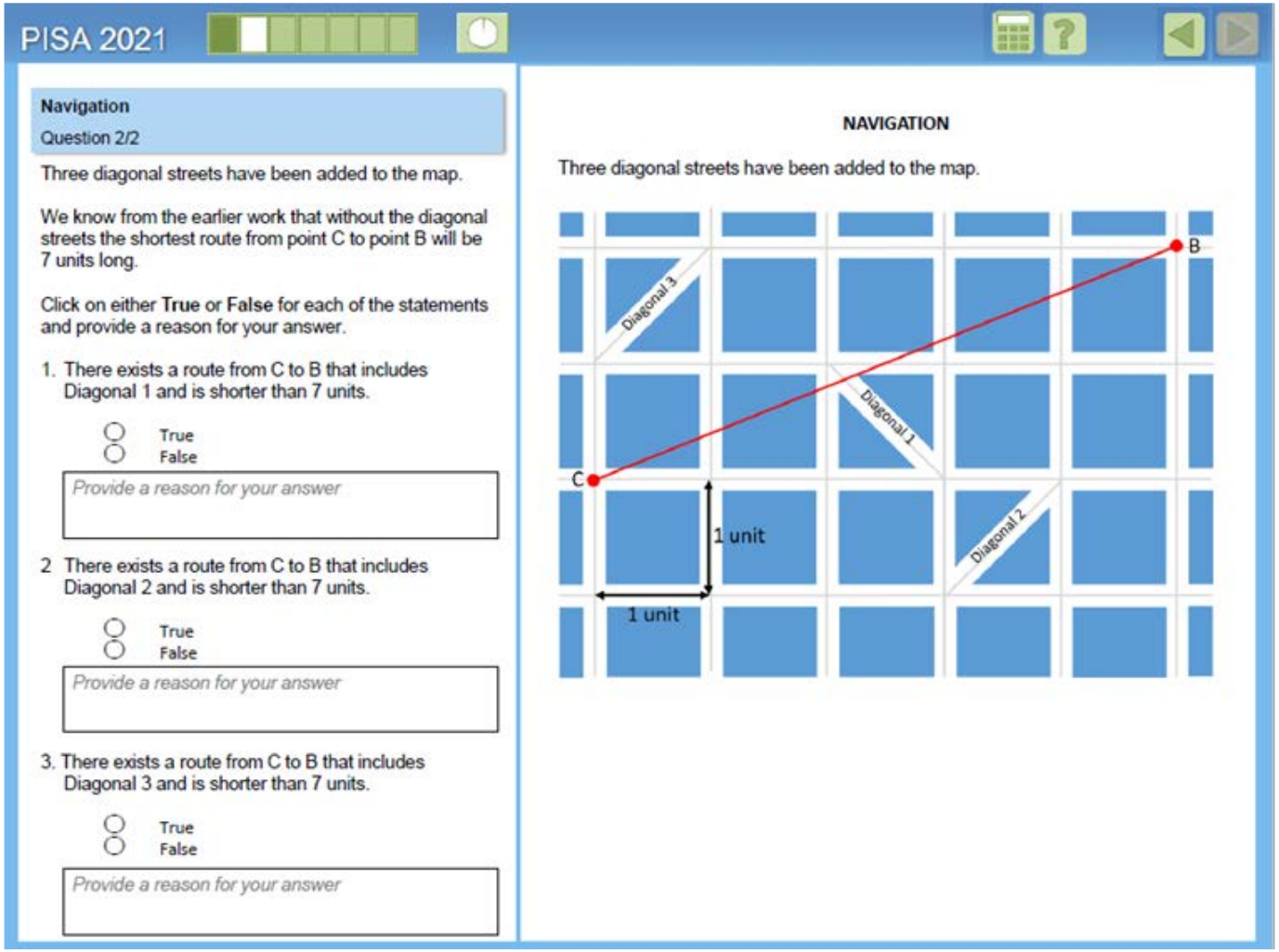
Annex Figure 2.A.30. Navigation – Introduction continued Corey**'s route**



Annex Figure 2.A.31. Navigation – Question 1/2

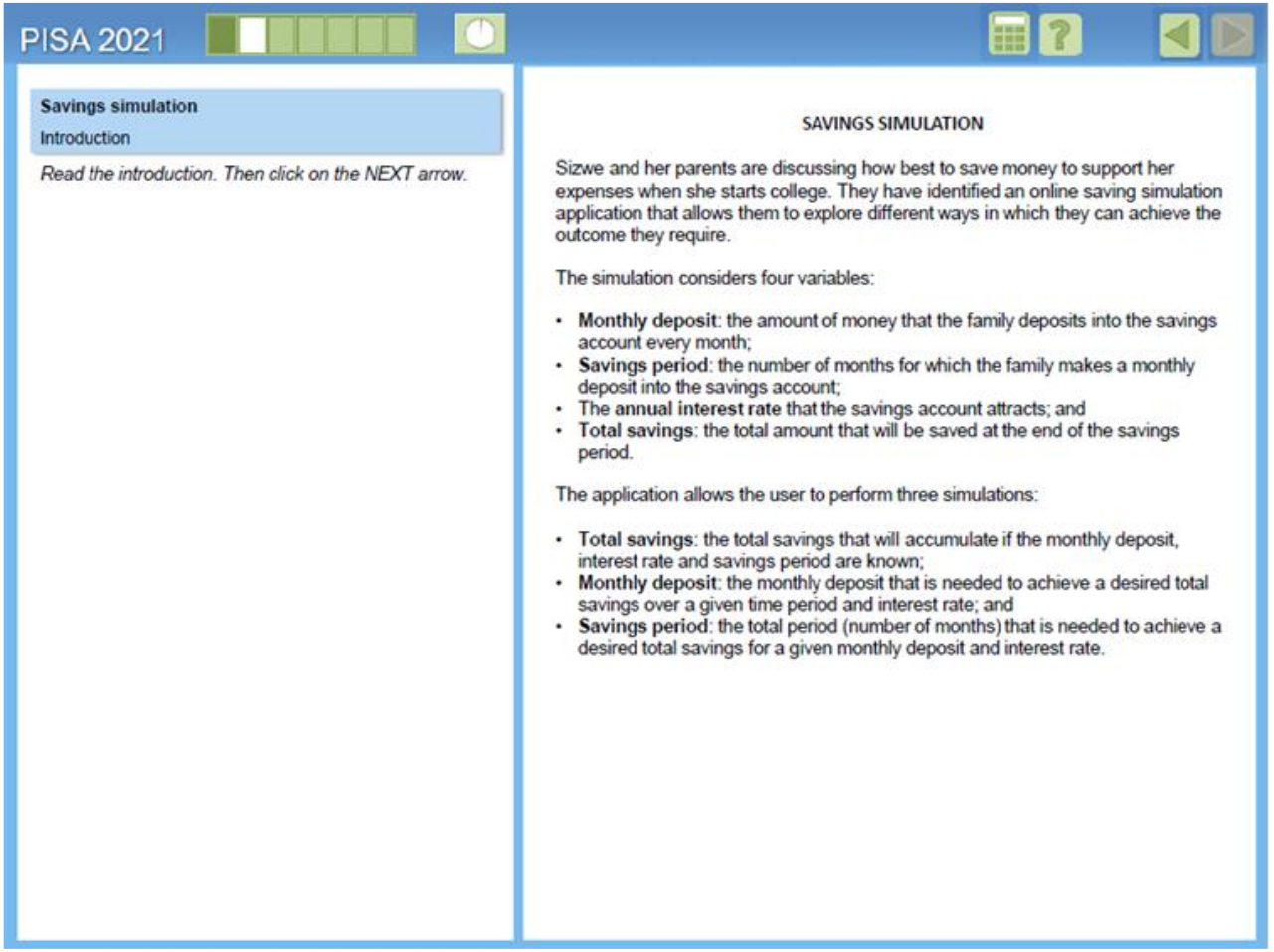


Annex Figure 2.A.32. Navigation – Question 2/2

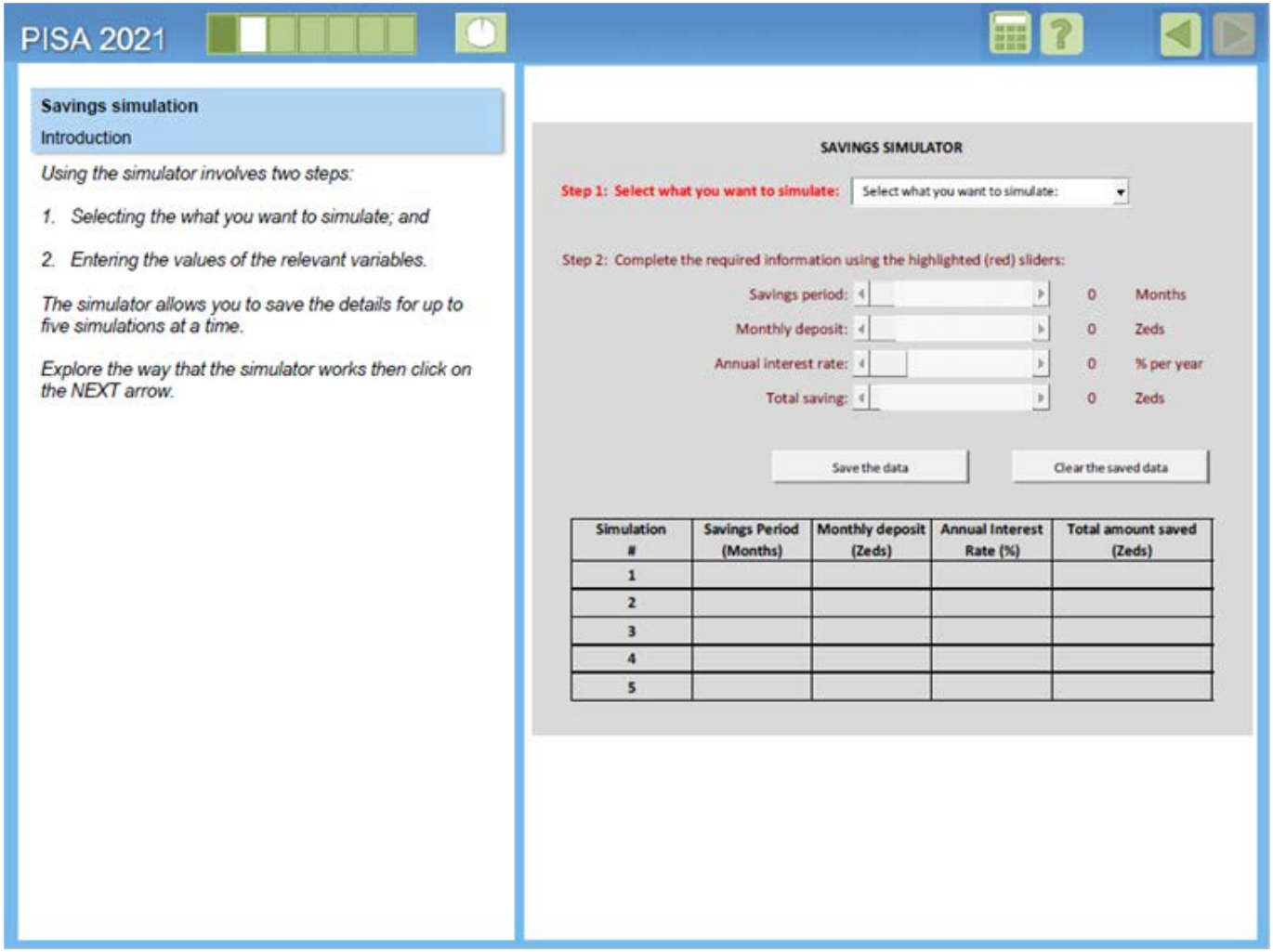


Savings simulation

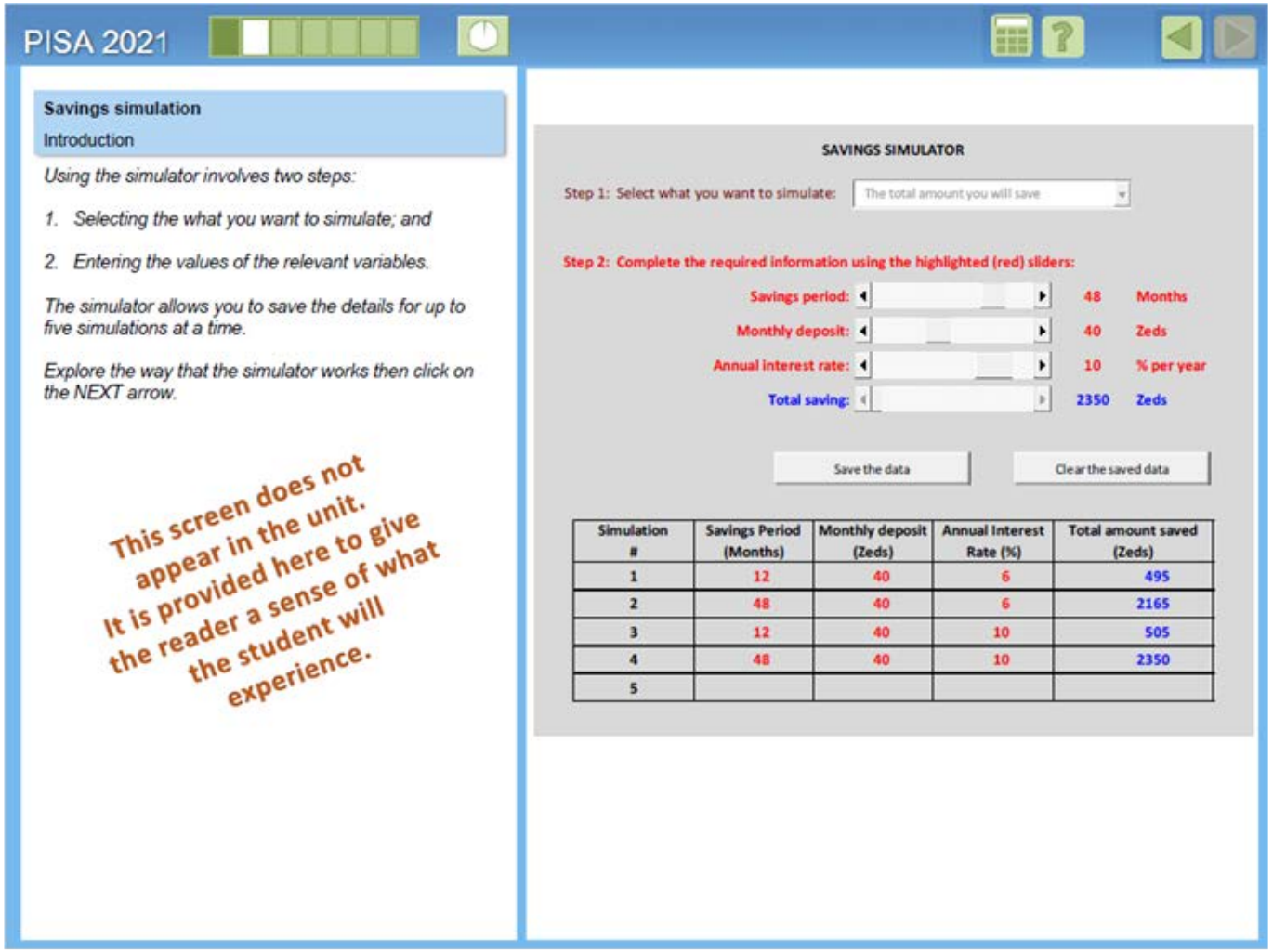
Annex Figure 2.A.33. Savings simulation - Introduction



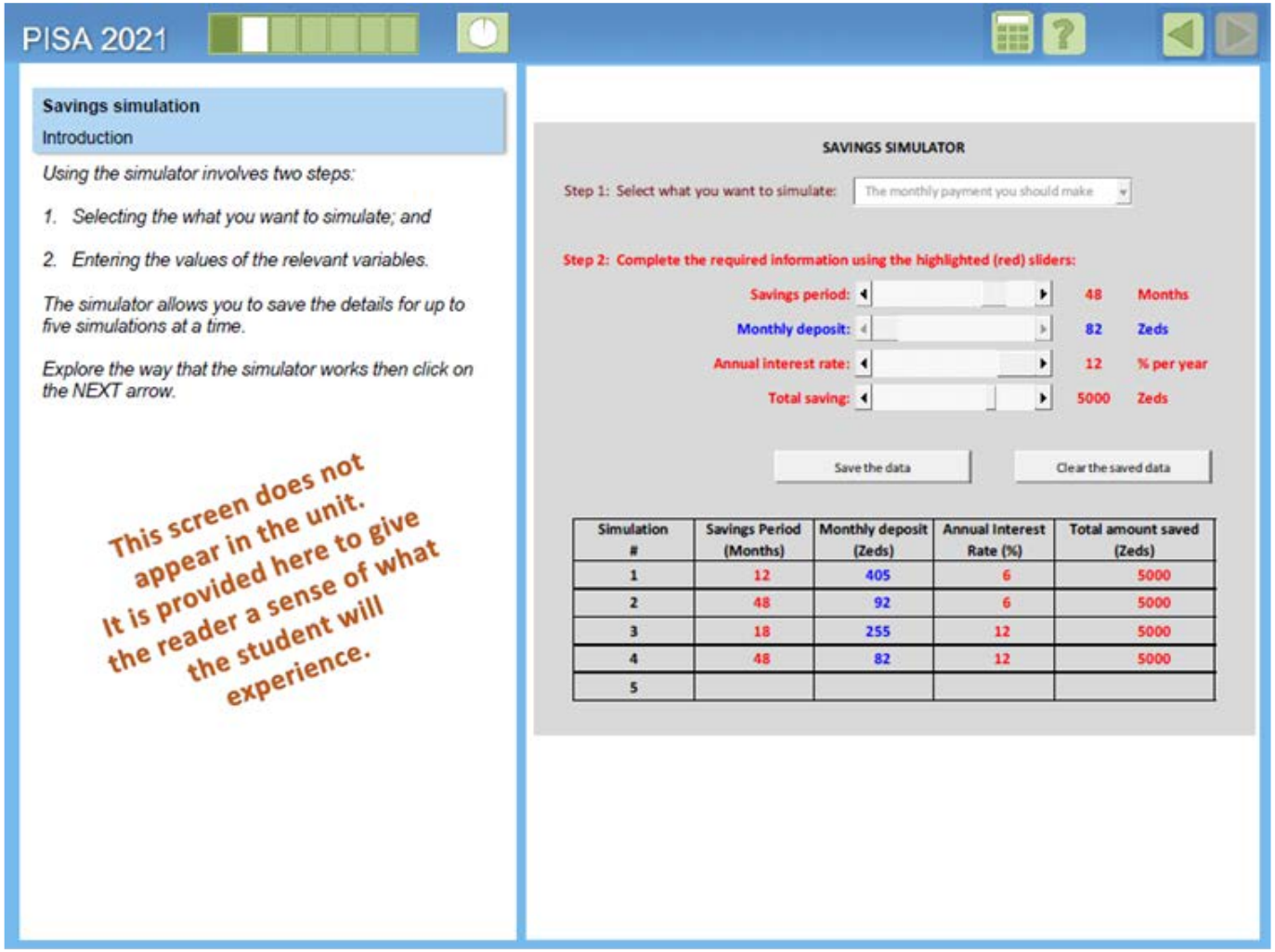
Annex Figure 2.A.34. Savings simulation – Introduction Simulator Step 1



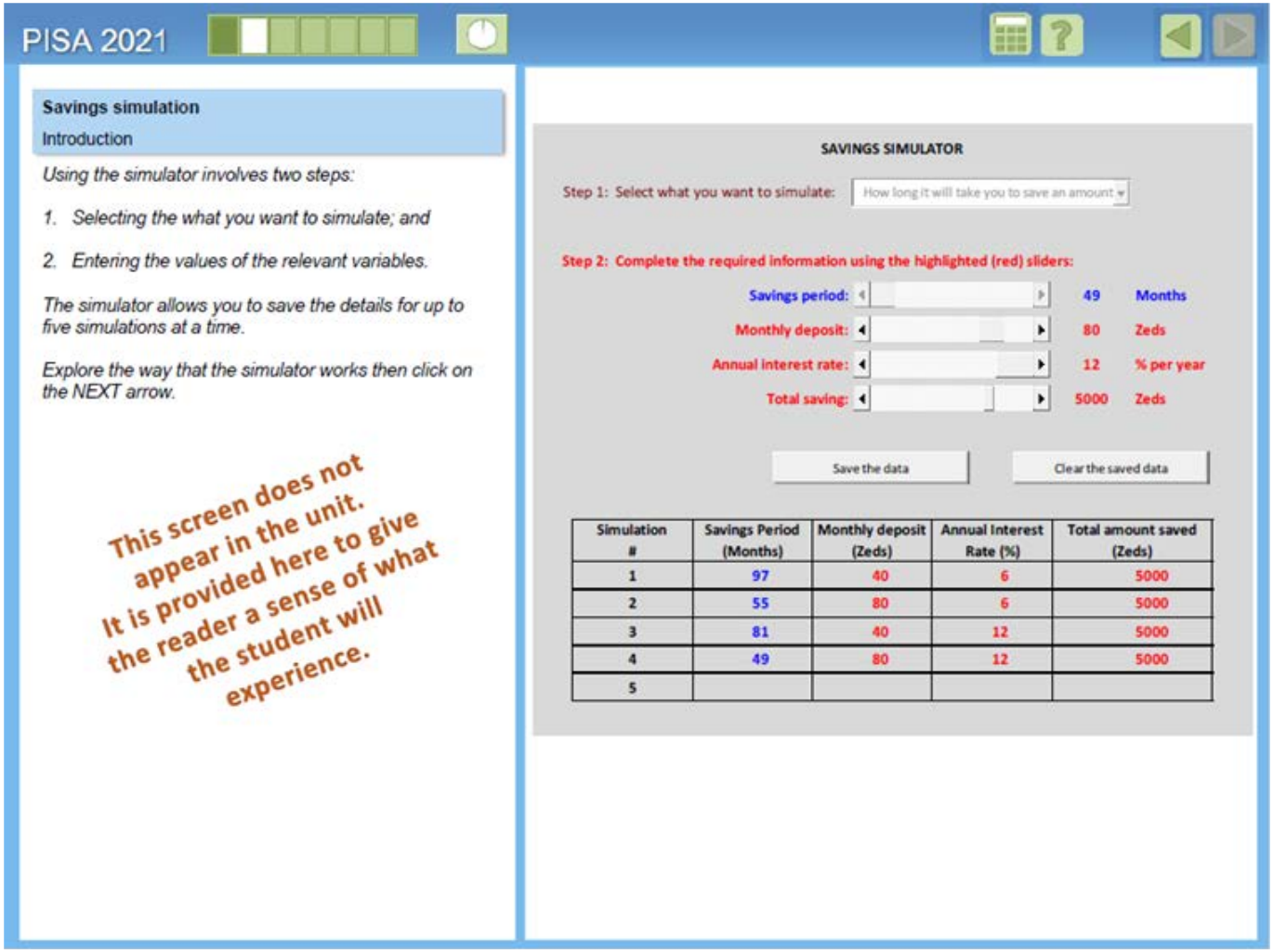
Annex Figure 2.A.35. Savings simulation – Introduction Simulator Step 2 Total saving



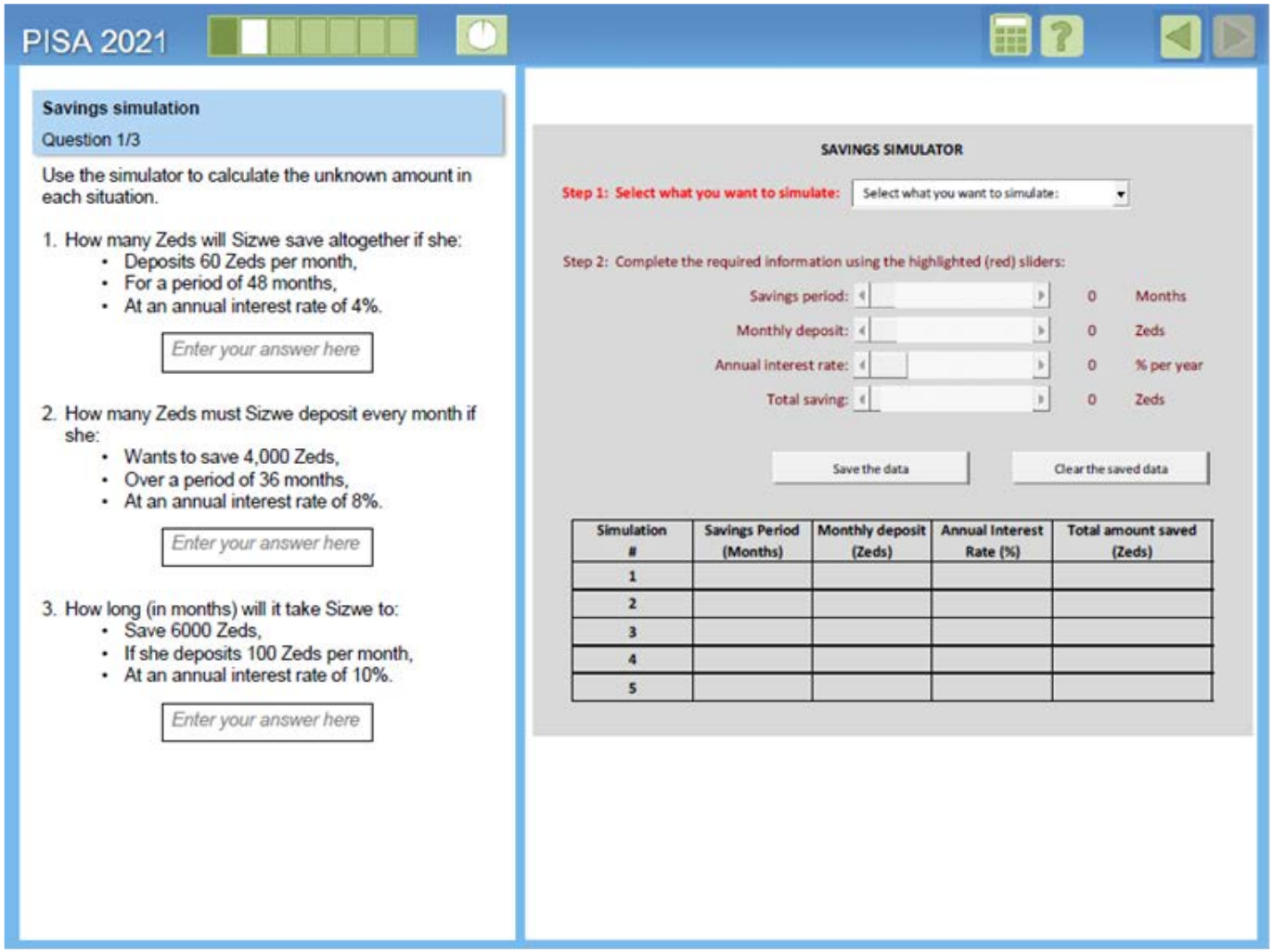
Annex Figure 2.A.36. Savings simulation – Introduction Simulator Step 2 Monthly deposit



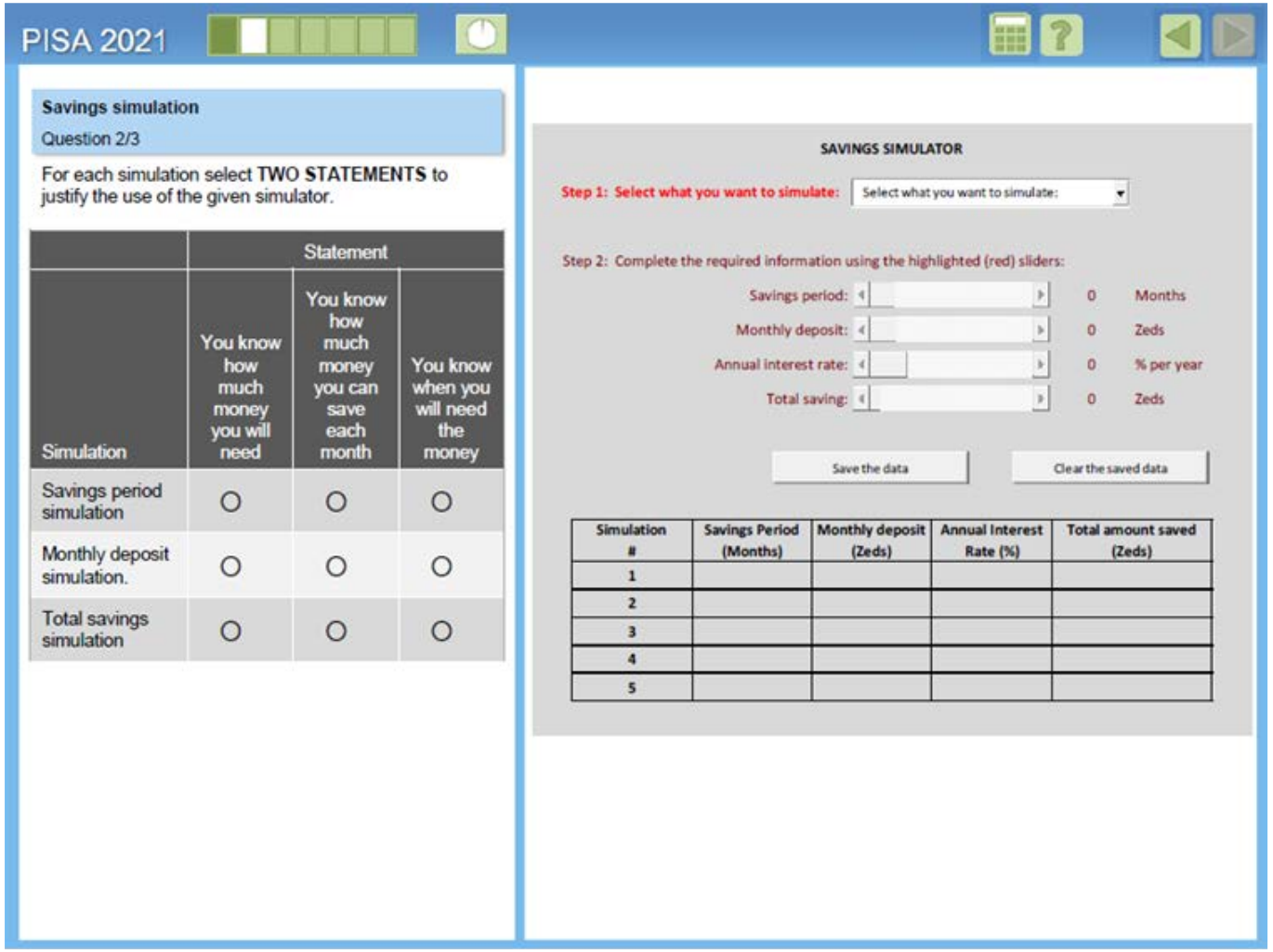
Annex Figure 2.A.37. Savings simulation – Introduction Simulator Step 2 Savings period



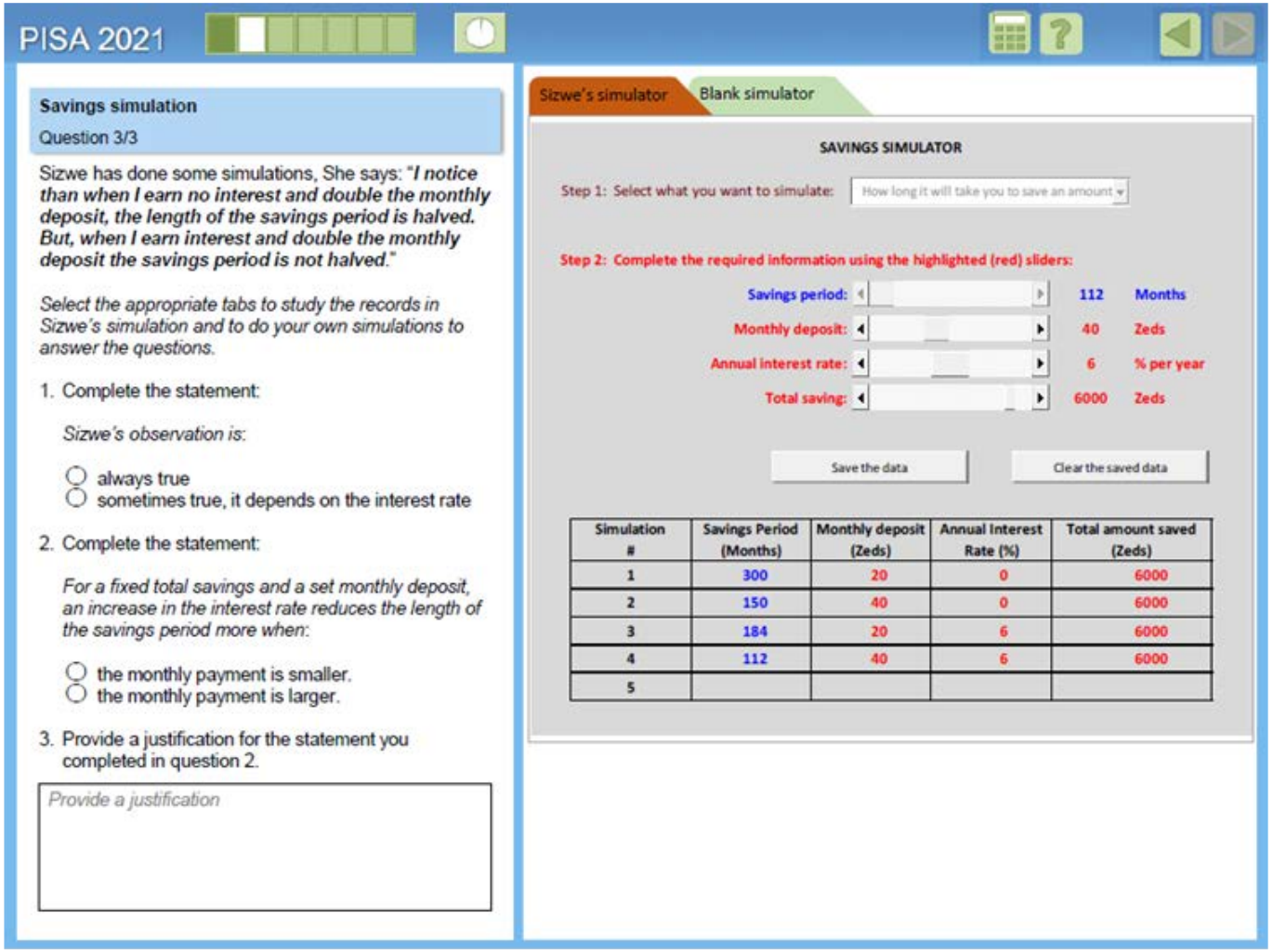
Annex Figure 2.A.38. Savings simulation – Question 1/3



Annex Figure 2.A.39. Savings simulation – Question 2/3



Annex Figure 2.A.40. Savings simulation – Question 2/3 **Sizwe's simulator**



Annex Figure 2.A.41. Savings simulation – Question 2/3 Blank simulator