Supplementary Materials

**CRT MCQ-2**

*Instructions:*

You will see on this page several items that vary in difficulty. Answer as many as you can.

A bat and a ball cost £1.10 in total. The bat costs £1.00 more than the ball. How much does the ball cost?

* 5 pence
* 10 pence

If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?

* 5 minutes
* 100 minutes

In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

* 47 days
* 24 days

If John can drink one barrel of water in 6 days, and Mary can drink one barrel of water in 12 days, how long would it take them to drink one barrel of water together?

* 4 days
* 9 days

Jerry received both the 15th highest and the 15th lowest mark in the class. How many students are in the class?

* 29 students
* 30 students

A man buys a pig for £60, sells it for £70, buys it back for £80, and sells it finally for £90. How much has he made?

* 20 pounds
* 10 pounds

Simon decided to invest £8,000 in the stock market one day early in 2008. Six months after he invested, on July 17, the stocks he had purchased were down 50%. Fortunately for Simon, from July 17 to October 17, the stocks he had purchased went up 75%. At this point, Simon:

* has lost money.
* is ahead of where he began.

Note: The presentation order of the answer options should be randomized for each participant. The presentation order of the seven items should be randomized for each participant as well. Please see implementation in Qualtrics at <https://osf.io/mzhyc/>. In a paper-and-pencil version of the test, we strongly recommend that you randomize the presentation order of the answer options as well as of the items for each test session. The Qualtrics implementation of the open-ended CRT required us to place an indication for answer (e.g., \_\_\_\_ pence) in the stem of the question and an empty textbox underneath. To achieve complete stem equivalence we left such indication (e.g., \_\_\_\_ pence) in the stem of each question even for CRT MCQ-2. For future uses of CRT MCQ-2, this does not seem to be needed.

**Scoring:**

*For the seven-item CRT:*

Reflectiveness score (0 – 7): 1 point for each correct answer (“A” option here): 5 pence, 5 minutes, 47 days, 4 days, 29 students, 20 pounds, has lost money, respectively.

Intuitiveness score (0 – 7): 1 point for each intuitive incorrect answer (“B” option here): 10 pence, 100 minutes, 24 days, 9 days, 30 students, 10 pounds, is ahead of where he began, respectively.

*For the three-item CRT:*

Reflectiveness score (0 – 3): 1 point for each correct answer (“A” option here) of the first three items: 5 pence, 5 minutes, 47 days, respectively.

Intuitiveness score (0 – 3): 1 point for each intuitive incorrect answer (“B” option here) of the first three items: 10 pence, 100 minutes, 24 days, is ahead of where he began, respectively.

**CRT MCQ-4**

*Instructions:*

You will see on this page several items that vary in difficulty. Answer as many as you can.

A bat and a ball cost £1.10 in total. The bat costs £1.00 more than the ball. How much does the ball cost?

* 5 pence
* 10 pence
* 9 pence
* 1 pence

If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?

* 5 minutes
* 100 minutes
* 20 minutes
* 500 minutes

In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

* 47 days
* 24 days
* 12 days
* 36 days

If John can drink one barrel of water in 6 days, and Mary can drink one barrel of water in 12 days, how long would it take them to drink one barrel of water together?

* 4 days
* 9 days
* 12 days
* 3 days

Jerry received both the 15th highest and the 15th lowest mark in the class. How many students are in the class?

* 29 students
* 30 students
* 1 student
* 15 students

A man buys a pig for £60, sells it for £70, buys it back for £80, and sells it finally for £90. How much has he made?

* 20 pounds
* 10 pounds
* 0 pounds
* 30 pounds

Simon decided to invest £8,000 in the stock market one day early in 2008. Six months after he invested, on July 17, the stocks he had purchased were down 50%. Fortunately for Simon, from July 17 to October 17, the stocks he had purchased went up 75%. At this point, Simon:

* has lost money.
* is ahead of where he began.
* has broken even in the stock market.
* it cannot be determined.

*Note:* The presentation order of the answer options should be randomized for each participant. The presentation order of the 7 items should be randomized for each participant as well. Please see implementation in Qualtrics at <https://osf.io/mzhyc/>. In a paper-and-pencil version of the test, we strongly recommend that you randomize the presentation order of the answer options as well as of the items for each test session. The Qualtrics implementation of the open-ended CRT required us to place an indication for answer (e.g., \_\_\_\_ pence) in the stem of the question and an empty textbox underneath. To achieve complete stem equivalence we left such indication (e.g., \_\_\_\_ pence) in the stem of each question even for CRT MCQ-2. For future uses of CRT MCQ-2, this does not seem to be needed.

**Scoring:**

*For the seven-item CRT:*

Reflectiveness score (0 – 7): 1 point for each correct answer (“A” option here): 5 pence, 5 minutes, 47 days, 4 days, 29 students, 20 pounds, has lost money, respectively.

Intuitiveness score (0 – 7): 1 point for each intuitive incorrect answer (“B” option here): 10 pence, 100 minutes, 24 days, 9 days, 30 students, 10 pounds, is ahead of where he began, respectively.

*For the three-item CRT:*

Reflectiveness score (0 – 3): 1 point for each correct answer (“A” option here) of the first three items: 5 pence, 5 minutes, 47 days, respectively.

Intuitiveness score (0 – 3): 1 point for each intuitive incorrect answer (“B” option here) of the first three items: 10 pence, 100 minutes, 24 days, is ahead of where he began, respectively.