Released Items
Grade 8 Math
AzM2

Updated September 2019

Prepared by the Arizona Department of Education
About the Released Items

The AzM2 Released Items provides details about the items, student response types, correct responses, and related scoring considerations for released AzM2 test items.

Within this guide, each item is presented with the following information:

- Cluster
- Content Standard
- Depth of Knowledge (DOK)
- Static presentation of the item
- Static presentation of student response field (when appropriate)
- Answer key, rubric or exemplar
- Applicable score point(s) for each item
- Option rationales (when applicable)

The items included in this guide are representative of the kinds of items that students can expect to experience when taking the computer-based test for AzM2 Grade 8 Math.

For items that permit the use of a calculator, a calculator icon is indicated.
Carl rides his bike from his home to the park, then back home.

- He leaves home at 9 a.m. and rides at an average speed of 16 kilometers per hour.
- At 10 a.m., Carl reaches the park and stops to eat lunch, which takes him 30 minutes.
- He then rides home, without stopping, at a slower average speed than before.

Use the Connect Line tool to construct a graph that represents Carl’s bike ride.

(1 Point) Student constructed a correct graph.

- The graph must have line segments from (9 a.m., 0) to (10 a.m., 16) and from (10 a.m., 16) to (10:30 a.m., 16).
- The graph must also have a line segment from (10:30 a.m., 16) to (x, 0), where \( x > 11:30 \) p.m.
- The graph may also have a line segment from \( (a, 0) \) to (9 a.m., 0), where \( A < 9 \) a.m., and from \( (x, 0) \) to \( (b, 0) \), where \( x \) is when Carl returns home and \( b > x \).
A scatter plot graph is shown.

Which statement **best** describes the data in the scatter plot?

- **A** positive linear association
- **B** positive nonlinear association
- **C** negative linear association
- **D** negative nonlinear association

(1 Point) Student selected the correct option.

**Option Rationales:**

**Choice A:** The student correctly identified that the scatter plot has a positive slope but did not recognize that it does not have a linear pattern.

**Choice B: Key** - The student recognized that the data have a positive association that might be modeled by a nonlinear relationship.

**Choice C:** The student may have confused positive association with negative association.

**Choice D:** The student may have confused positive association with negative association while correctly recognizing that the scatter plot might be modeled by a nonlinear relationship. It isn’t the outlier that makes this nonlinear.
(1 Point) Student correctly ordered the expressions.
Select all the expressions that are equivalent to \((15^2 \cdot 15^3)^4\).

- \(15^9\)
- \(15^{20}\)
- \(15^{24}\)
- \((15^6)^4\)
- \(15^6 \cdot 15^7\)
- \(15^8 \cdot 15^{12}\)

(1 Point) Student selected both of the correct expressions.
Quadrilateral $ABCD$ with dimensions in inches (in) is shown.

$ABCD$ is reflected over $DC$ to create quadrilateral $TUVW$.

What is the length, in inches, of $UV$?

(1 Point) Student entered 7 or any equivalent value.