

NWEA Assessment Item Illustrating 8.F.B.5

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Domain: Functions

8.F.B: Use functions to model relationships between quantities.

Calculator Availability: No

Use the graph to answer the question.

The graph shows the distance Kayla is from a lamppost during her walk.

Which statement best describes what the graph could represent?

- A. Kayla walked toward the lamppost, then away from it.
- B. Kayla walked away from the lamppost, then toward it.
- C. Kayla walked toward the lamppost quickly at first, then slowed down.
- D. Kayla walked away from the lamppost quickly at first, then slowed down.

Alignment: 8.F.B.5: Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

This item focuses on the translation between graphs and real-world verbal descriptions. The item highlights the interpretation of time-distance graphs and an understanding, from written descriptions, of when the graph is increasing or decreasing.

Coherence: This standard extends representation of relationships in graphs, which students begin working on with proportional relationships.^{8.EE.B.5} In grade 8, students are introduced to the concept of functions and gain the understanding and skills necessary to create linear function models based on descriptions^{8.F.B.4} and, in this standard, to relate those models to the graphs that represent the function. The descriptions and models presented to grade 8 students will be more simplistic and general than those that will be presented in high school courses.^{HSF-IF.B} However, grade 8 descriptions and models are not limited to linear relationships.

Rigor: This item attends to conceptual understanding and application. Students must recall grade-level concepts about increasing and decreasing within a familiar context.

Answer Key:

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