

# NWEA Assessment Item Illustrating 7.RP.A.2.a

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**Domain:** Ratios and Proportional Relationships

**7.RP.A:** Analyze proportional relationships and use them to solve real-world and mathematical problems.

**Calculator Availability:** Yes

Choose all the tables that represent a proportional relationship between the number of shirts bought and the cost of the shirts.

A. 

Number of Shirts Bought	5	10	15	20	25
Cost of Shirts (\$)	5	10	15	20	25

B. 

Number of Shirts Bought	5	10	15	20	25
Cost of Shirts (\$)	20	40	70	90	120

C. 

Number of Shirts Bought	5	10	15	20	25
Cost of Shirts (\$)	40	80	120	160	200

D. 

Number of Shirts Bought	5	10	15	20	25
Cost of Shirts (\$)	50	150	250	350	450

**Alignment: 7.RP.A.2a:** Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

Identifying proportional relationships is foundational for future studies in mathematics, including linear functions and geometry. This item requires students to evaluate the given tables to determine which of the relationships are proportional. The values were chosen to keep the mental math relatively easy, though a calculator is available.

**Coherence:** In grade 6, students were introduced to the concept of ratios and began calculating unit rates with whole numbers. Also, in grade 6, students solved problems involving unit rate, and learned the equivalent terms *for every*, *for each*, *for each 1*, and *per* were established and used.<sup>6.RP.A</sup> This grade 7 standard lays the foundation for understanding relationships as functions and prepares students to graph, compare, and interpret proportional relationships as linear functions in grade 8.<sup>8.F.A/B, 8.EE.B</sup>

**Rigor:** This item attends to conceptual understanding, application, and procedural skill. Students must understand and recall the concept of a proportional relationship in a familiar context requiring little interpretation. Students use a below grade-level procedure for division or use scaling to determine which sets of values represent proportional relationships. The calculator is provided as a tool, which, if used, lessens the procedural complexity of the item.

**Answer Key:**

Choose all the tables that represent a proportional relationship between the number of shirts bought and the cost of the shirts.

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