# **Math 8 B Unit Test Guide**

## Graphing Linear Equations Unit Test

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| **Item** | **Lesson Coverage** | **Objective** | **Lesson Page** | **Assessment Item** |
| 1 | Lesson 2: Proportional Relationships | Describe what makes a ratio | p. 1-6 | Write the ratio $12:9$ as an equivalent ratio of$ 4:x.$ Answer: $4:3$ |
| 2 | Lesson 2: Proportional Relationships | Determine if two ratios are proportional | p. 13-18 | Which of the following, Option 1 or Option 2, is a proportion?Option 1: $\frac{5}{6}=\frac{15}{18}$Option 2: $\frac{5}{6}=\frac{20}{18}$Option \_\_\_\_\_ is a proportion.Answer: 1 |
| 3 | Lesson 3: Unit Rate from Tables and Equations | Determine the unit rate of a proportional relationship from a table. | p. 1-6 | *Use the table to answer the question.* What is the cost for 1 pound of ground beef?Answer: 3.75 |
| 4 | Lesson 3: Unit Rate from Tables and Equations | Determine the unit rate of a proportional relationship from an equation. | p. 7-12 | There are 48 inches in 4 feet, which is represented by the equation $4y=48x$. Determine the number of inches per foot. Answer: 12 inches |
| 5 | Lesson 4: Graphing Proportional Relationships | Derive the equation y = mx for a line through the origin. | p. 1-7 | *Use the image to answer the question.*The graph shows the proportional relationship. Derive the equation of the line $y=mx$ through the origin.Answer: $y=5x$[Graphing Linear Equations Unit Test Item #5 | Desmos](https://www.desmos.com/calculator/p0iieixv25) |
| 6 | Lesson 4: Graphing Proportional Relationships | Graph proportional relationships.  | p. 8-13 | Graph the proportional relationship y=2x by plotting points.Answer: [Graphing Linear Equations Unit Test Item #6 | Desmos](https://www.desmos.com/calculator/28s4wczvl0) |
| 7 | Lesson 5: Slope as Unit Rate | Determine the unit rate of a proportional relationship using a graph. | p. 1-6 | *Use the image to answer the question.*The proportional relationship between calories and ounces of soda is shown in the graph. How many calories are in 1 ounce?There are \_\_\_\_\_ calories in 1 ounce of soda. Answer: 12[Graphing Linear Equations Unit Test Item #7 | Desmos](https://www.desmos.com/calculator/hub3mknxcs) |
| 8 | Lesson 5: Slope as Unit Rate | Interpret the unit rate as the slope of the graph of a proportional relationship.  | p. 7-11 | *Use the image to answer the question.*The earnings for Employee 1 and Employee 2 are displayed in the following graphs. Which employee earns more per hour?Employee \_\_\_\_\_ earns more per hour.Answer: 2[Graphing Linear Equations Unit Test Item #8 | Desmos](https://www.desmos.com/calculator/yv64mx6krb) |
| 9 | Lesson 5: Slope as Unit Rate | Use similar triangles to explain why the slope, *m*, is the same between any two distinct points on a non-vertical line in the coordinate plane. | p. 12-18 | *Use the image to answer the question.*Use similar triangles to determine the slope of the line. The slope is \_\_\_\_\_.Answer: 3 |
| 10 | Lesson 6: Compare Proportional Relationships | Compare two different proportional relationships represented in two different ways. | All | *Use the table to answer the question.*The cost of Candy Bar A is displayed in the table. The proportional relationship between the cost and quantity for Candy Bar B is represented by the equation $y=x$. Which candy bar is the cheapest cost per bar? Enter 1 for Candy Bar A. Enter 2 for Candy Bar B.Answer: 2[Graphing Linear Equations Unit Test Item #10 | Desmos](https://www.desmos.com/calculator/lwa1kj4zqw) |
| 11 | Lesson 7: Graphing Equations | Derive the equation $y = mx + b$ for a line intercepting the vertical axis at b. | p. 1-6 | *Use the image to answer the question.*Use the graph to derive the equation of the line in slope-intercept form.Answer: $y=5x-2$[Graphing Linear Equations Unit Test Item #11 | Desmos](https://www.desmos.com/calculator/cpezi7gbyn) |
| 12 | Lesson 7: Graphing Equations | Graph linear equations in the form $y=mx+b$. | p. 7-14 | Graph the linear equation $y=2x-3$.Answer: [Graphing Linear Equations Unit Test Item #12 | Desmos](https://www.desmos.com/calculator/r38ttmf1ud) |
| 13 | Lesson 8: Slope-Intercept Form | Transform linear equations in any form to slope-intercept form. | p. 1-6 | Write $y-6x=5$ in slope-intercept form.Answer: $y=6x+5$ |
| 14 | Lesson 8: Slope-Intercept Form | Graph linear equations in any form by re-writing in slope-intercept form. | p. 7-12 | Graph the equation $x-y=6$ using the form $y=mx+b$.Answer: [Graphing Linear Equations Unit Test Item #14 | Desmos](https://www.desmos.com/calculator/drjejkknub) |
| 15 | Lesson 2: Proportional Relationships | Describe what makes a proportion | p. 7-12 | Describe what makes a proportion. Give an example of a proportion.Answer: The student should explain that a proportion is an equation or statement that two ratios are equal to each other. The student should also provide an example of a proportion such as $\frac{1}{2}=\frac{8}{16}$ or $1:2=8:16$. |