

# M101: Linear Equations - Concepts and Skills

## Pre-Badge Task

Name: \_\_\_\_\_

Teacher: \_\_\_\_\_

### New Badge Alert!

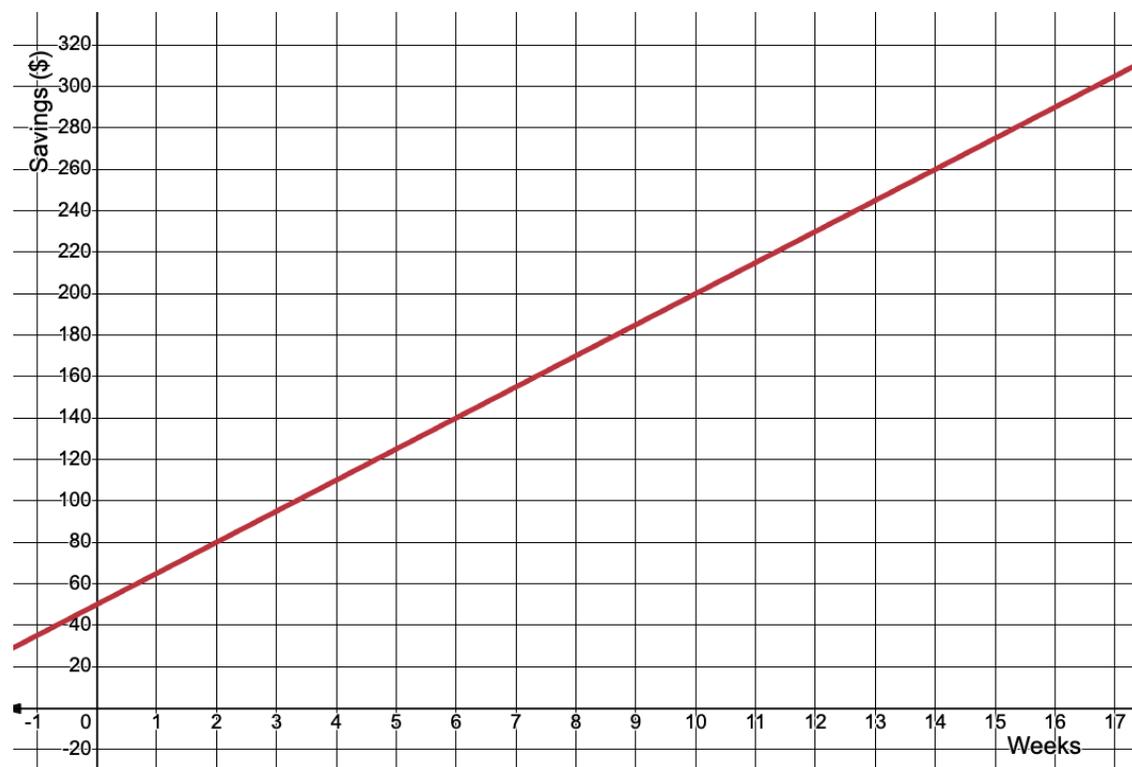
This task will provide a preview of what we will be learning during the M101 - Linear Equations: Concepts and Skills badge. You already know so much math, so use this task to share any understanding that you have before we start our learning. You will have a chance to do the same task at the end of the badge to see how your thinking has evolved.

### The Task

Luka and his friend, Raquel, are both saving for new e-bikes.

Luka currently does not have any money, but is going to start saving \$20 a week.

Raquel's savings are shown on this graph:



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**QUESTION 1** This task is about e-bikes. Do some research! Report on the following questions:

- What is an e-bike?
- What is the cost of some of the most expensive e-bikes?
- What is the cost of some of the least expensive e-bikes?
- Do you notice any significant differences between the very expensive e-bikes and the less expensive e-bikes? What are they?
- Did you find an e-bike that you might want to purchase? If so, what did you like about it?



**QUESTION 2** Write an equation to represent Luka's savings over time. Describe what the variables you choose in your equation represent in the context of the problem.



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**QUESTION 3** How much money will Luka have after 3 weeks? How do you know?



**QUESTION 4** How much money does Raquel save each week? How do you know?



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**QUESTION 5** Luka tells Raquel that they are saving at the same rate because after 10 weeks, they will both have \$200. Do you agree or disagree with Luka? Graph Luca's savings and use the graph to justify your answer.



**QUESTION 6** After how many weeks will each person be able to afford an e-bike that costs \$300?



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**QUESTION 7** If you were going to start saving for a new bike, which one would you choose? How much does it cost? What math would you use to plan? Why?



**QUESTION 8**

- a. What is an example of a question you could ask where you would find Raquel's graph more useful to answer it than Luka's equation?
- b. What is an example of a question you could ask where you would find Luka's equation more useful to answer it than Raquel's graph?
- c. Are there any questions you could ask where it wouldn't matter to you whether you had a graph or an equation?

