**Module 8 Real-World Application Problems**

**Habitat for Humanity**

**Description of Task:** Using volunteers, Habitat for Humanity has helped build thousands of homes for low-income families around the world. Suppose you are part of a volunteer crew constructing low-cost housing. Building a house requires a total of 160 workdays. For example, a crew of 20 people can complete a house in 8 days.

1. Create a table with headings: Crew Size (x), Construction Days (y), and Total Workdays.
2. Fill in the table with three appropriate values.
3. Graph the (x, y) data from the table.

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1. What kind of variation is it? How do you know?

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1. What is the constant of variation? How does this number relate to the table of values?

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1. Write the equation that models this variation. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Reflection - Answer the following questions:
   1. How does the table help to decide what kind of variation it is?
   2. How does the graph help to decide what kind of variation it is?
   3. What happens to construction time as crew size increases? Why does this make sense? How does this relationship illustrate this type of variation?
   4. Fill in two more combinations in the table from the beginning and then add them to your graph. For this situation, does it make sense to connect the points on the graph? Explain.
   5. There are at least two instances in this situation that are unrealistic. Explain why?
   6. Why would using a mathematical model to analyze a situation, such as this one, be beneficial?