**2.4 Assignment Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Scaling a Cliff**

**Linear Functions**

 **1.** In 1980, George Adrian set the world record for the most apples picked in 8 hours. He picked a total of 15,830 pounds of apples. That’s almost 8 tons of apples! Delilah is practicing so that she can try to beat George’s record. After picking for a while, she finds that she has picked 2 tons of apples. She hopes to pick 2 tons per hour for the next several hours.

**a.** If Delilah manages to pick at a rate of 2 tons per hour, how many tons of apples will Delilah have picked 1 hour after she starts picking again? Show your work.

**b.** Which quantities are changing? Which quantities remain the same?

**c.** Use the information in parts (a) through (c) to complete the table.

|  |  |  |
| --- | --- | --- |
| **Quantity Name** | **Time** | **Weight of Apples** |
| **Unit of Measure** |  |  |
| **Expression** |  |  |
|  | 1 |  |
|  | 2 |  |
|  | 3 |  |
|  |  | 10 |
|  |  | 12 |

**d.** How many more hours will it take Delilah to pick a total of 8 tons of apples?

**e.** Which variable is the independent variable? Which variable is the dependent variable? Explain your reasoning.

**f.** Create a graph to represent the values in the table. Remember to label your axes.



**g.** Write each row of numbers in your table as an ordered pair. Plot each ordered pair on the grid in part (f). Then, draw a straight line connecting the points and describe the line.

**h.** Is the relation shown in the graph a linear function? Explain your reasoning.

**2.4**