What should the minimum wage be today?

Minimum wage in America isn't as old as you might think—the first federal minimum wage was introduced in 1938 under Franklin Delano Roosevelt at 25 cents an hour, roughly $4 today. It was created as part of the Fair Labor Standards Act (FLSA), which also established standards for youth employment, overtime pay, recordkeeping, and government employees at every level.

Since its introduction, the federal minimum wage has been raised 22 times by 12 different presidents, but it has remained at $7.25 since 2009. While many states have opted for higher minimums, the federal rate does not automatically rise with inflation; only Congress can increase it. Without congressional action over the years, today's minimum wage would still be just 25 cents an hour.

In this activity, we'll explore the history of the U.S. minimum wage and analyze the data to build a model that predicts what an appropriate minimum wage would be today.
Source: https://bebusinessed.com/history/history-of-minimum-wage

Data

Below is a table of the federal minimum hourly wage level and the year it went into effect.

Year	Wage
1938	$0.25
1939	$0.30
1945	$0.40
1950	$0.75
1956	$1.00
1961	$1.15
1963	$1.25
1967	$1.40

Year	Wage
1968	$1.60
1974	$2.00
1975	$2.10
1976	$2.30
1978	$2.65
1979	$2.90
1980	$3.10
1981	$3.35

Year	Wage
1990	$3.80
1991	$4.25
1996	$4.75
1997	$5.15
2007	$5.85
2008	$6.55
2009	$7.25

Source: US Department of Labor
Saved simulator session: https://my.numworks.com/simulators/1ydeABx

1. Create a scatter plot of the data set. What is the correlation coefficient? What does the correlation coefficient tell us about the relationship between years and wages?

2. Use your calculator to create a linear regression model.

3. What does the slope of your model mean in the context of this situation?

4. The US Department of Labor data indicates that the minimum wage reached $2.10 in 1975. According to the model, what should the minimum wage have been in 1975?

5. The US Department of Labor data indicates that the minimum wage reached $5.15 in 1997. According to your model, in what year should the minimum wage have reached $5.00?

6. The US Department of Labor data indicates that the minimum wage reached $1.00 in 1956. According to your model, what should the minimum wage have been in 1956?

7. According to your model, in what year should the minimum wage have been $0? Explain what this suggests about your model.

8. Review the model predictions from questions 4 - 7. How would you explain the differences between the actual data and your predictions from the model?

9. According to the US Department of Labor data, what was the average rate of change for the minimum wage from 1938 to 1974?

10. According to the US Department of Labor data, what was the average rate of change from 1974 to 2009?

11. How do these values compare to the slope of your model? What might that tell you about your model?

Extension

Describe the Residual plot of your linear model. What does it indicate about the model?

Would you choose a different model to better fit the data? If so, what model would you use?