



April 2000

Activity 1: Comparative Costs: Louisiana Purchase, Jefferson's Library, and Presidential Salaries

Solutions

A. The Louisiana Purchase

1. a. Since 1 square mile = 640 acres, 800,000 square miles = 800,000 x 1 square mile = 800,000 x 640 acres = 512,000,000 acres.

b. $\$15,000,000 / 512,000,000$ acres = \$0.03 or 3 cents per acre.

2. $\$500 \times 512,000,000$ acres = \$256,000,000,000 or \$256 billion.

3. In 1800, \$10 was equivalent to \$100 in 1999, so $\$10 \times 10 = \100 .
Therefore, $\$15,000,000 \times 10 = \$150,000,000$.

4. Enter \$15,000,000 and select 1803 as the initial year and 1999 as the final year. So, \$15,000,000 in 1803 is equivalent to \$169,205,052.58 in 1999.

5. To find percentage change, take the amount of change (subtract original amount from new amount) and divide it by the original amount.

$$\$169,205,052.58 - \$15,000,000 = \$154,205,052.58$$

$$154,205,052.58 / 15,000,000 = 10.28 \text{ or } 1,028\%$$

B. Jefferson's Library

6. $\$23,940 / 6,487$ books = \$3.69 per book

7. In 1815, \$12 was equivalent to \$100 in 1999 (or 2000), so $\$12 \times 8.333 = \100 .
Therefore, $\$6,487 \times 8.333 = \$54,056$.

8. Enter \$23,940 and select 1815 as the initial year and 1999 as the final year. So, \$23,940 in 1815 is equivalent to \$184,409.65 in 1999.

9. To calculate the percent change, find the amount change and divide by original amount.
 $\$184,409.65 - \$23,940 = \$160,469.65$
 $160,469.65/23,940 = 6.70$ or 670%

10. In today's dollars, the purchase of Jefferson's library comes to approximately \$28.43 per book ($\$184,409.65/6,487$). A hard cover book today can cost from \$10 to \$40, so the price paid for Jefferson's books seems reasonable.

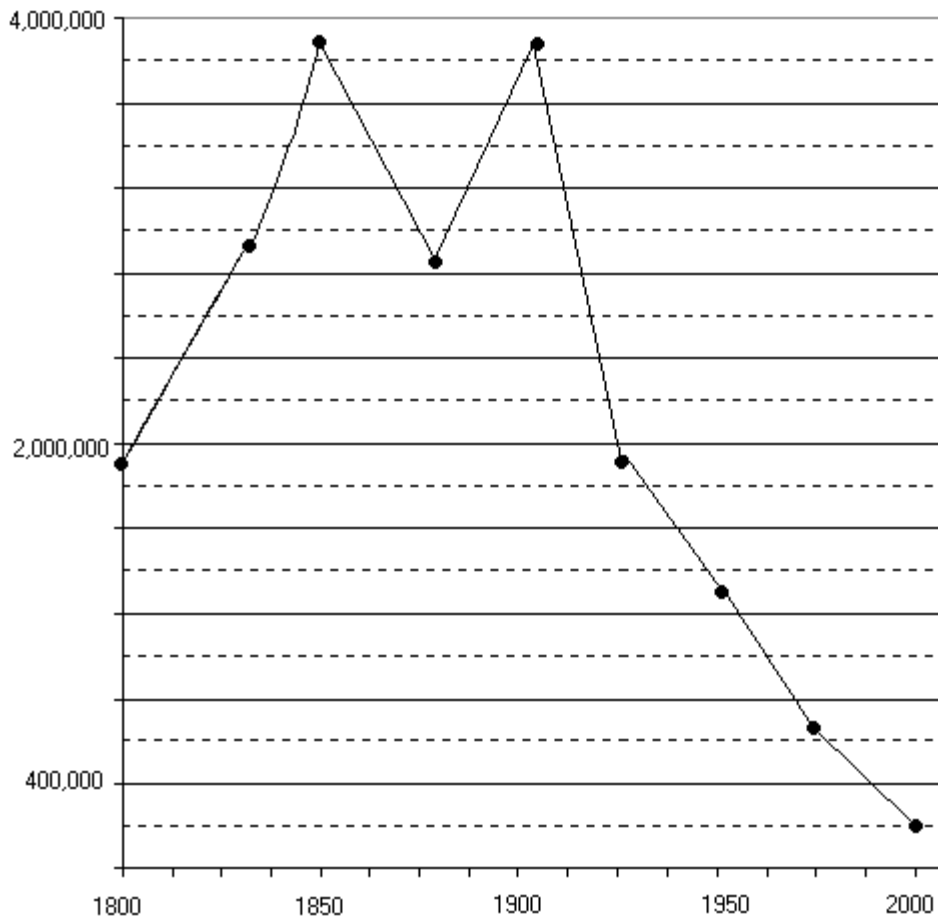
C. Presidential Salaries

11. a. \$340,000
b. \$680,000

12. a. \$2,021,176.71
b. \$2,070,626.65
c. \$1,620,977.12

13. Students should use the inflation calculator to compute several values equivalent to \$200,000 in the year 1999 (or 2000). They will find that the upper limit value is approximately \$4,000,000. This will allow them to label the axes. The horizontal axis should range from 1800 to 2000 and the vertical axes from 0 to \$4,000,000 (each tic mark on the horizontal axes is 25 years and each on the vertical is \$200,000).

Students should use the calculator to complete several equivalent values (values for 1800, 1825, 1850, 1875, . . . , 1975 will suffice, but the more they compute, the more accurate the graph).



14. Answers will vary. Students may think it is unfair because it has not changed in many years and it had a much higher “buying power” in earlier years. Others may think it’s fair since the office carries many benefits.