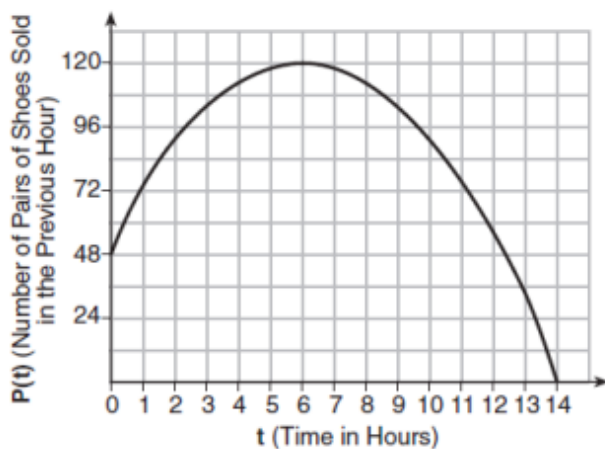
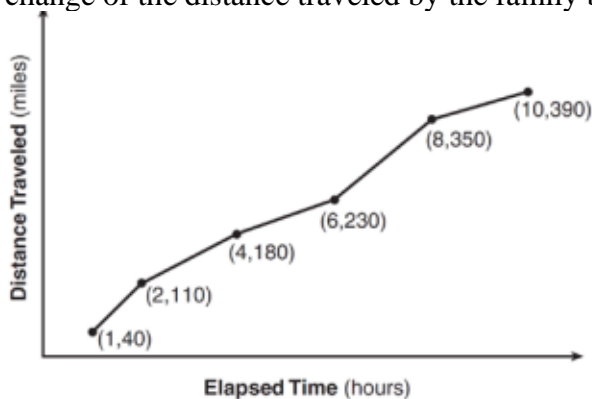


### Quiz 3 Practice

- Based on data from Major League Baseball, the average price of a ticket to a major league game can be approximated by  $p(x) = 0.03x^2 + 0.56x + 36.82$ , where  $x$  is the number of years after 2008 and  $p(x)$  is in dollars.
  - Find the average price of a ticket to a major league game in 2015
  - Find average price of a ticket to a major league game in 2025
  - What is the average rate of change in the price of tickets to a major league game from 2015 to 2025? Include the correct units.
- For a recently released novel, the function  $y = 25000(0.85)^t$  models the number of books sold  $t$  months after the book was released.
  - Find the number of books sold 2 months after it was released.
  - Find the number of books sold 6 months after it was released.
  - Find the average rate of change in the number of books sold between month 2 and month 6. Make sure to include correct units.
- A manager wanted to analyze the online shoe sales for his business. He collected data for the number of pairs of shoes sold each hour over a 14-hour time period. Find the average rate of change of the number of pairs of shoes sold between hour 4 and hour 10.



- The graph below shows the miles traveled by a family on a recent road trip. Find the average rate of change of the distance traveled by the family between hour 1 to hour 10.



Find the derivative.

|   |                                     |
|---|-------------------------------------|
| 5. $f(x) = 4x^3 - 6x^2 - 5x - 8$            | 6. $f(x) = 5x^8 - x^7 + 9x^5$       |
| 7. $y = \frac{x^8 + 6x^7 + 10x^5}{x^4}$     | 8. $y = (6x + 1)^2$                 |
| 9. $f(x) = e^{6x^3 - 2x^2 + 3x - 1}$        | 10. $f(x) = \ln(10x^5 - 4x^3 + 2)$  |
| 11. $y = (3x^4 - x^2)(x^3 - 4x)$            | 12. $y = \frac{x^3 - 4}{6x^2 + 3}$  |
| 13. $f(x) = \frac{e^{9x}}{7x^2}$            | 14. $f(x) = 6x^4 \ln(2x)$           |
| 15. $y = 4x^3 + 8x^2 - 9x + 14$             | 16. $y = 5x^5 + 8x^4 - 2x$          |
| 17. $f(x) = \frac{3x^6 + 7x^5 - 3x^3}{x^2}$ | 18. $f(x) = (8x - 3)(x + 5)$        |
| 19. $f(x) = e^{10x^2 - 6x + 5}$             | 20. $f(x) = \ln(8x^3 - 9)$          |
| 21. $y = (3x^2 - 9x)(x^5 - 11)$             | 22. $y = \frac{2x^4 + x}{3x^2 - 9}$ |
| 23. $f(x) = \frac{3x^3}{e^{5x}}$            | 24. $f(x) = 9x^2 \ln(4x)$           |

25. If  $f(x) = 7x^4 - 5x^3 + 4x - 10$ , find  $f'(2)$

26. If  $f(x) = 3x^5 - 4x^3 + 5x^2 - 7x$ , find  $f'(1)$