Quiz 3 Practice

1. 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.
   a. Find the average price of a ticket to a major league game in 2015

   b. Find average price of a ticket to a major league game in 2025

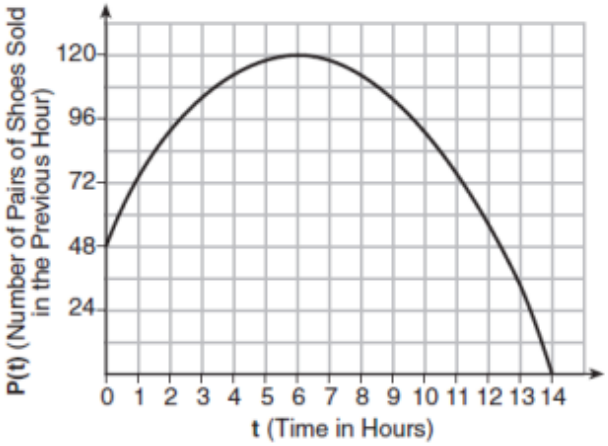
   c. What is the average rate of change in the price of tickets to a major league game from 2015 to 2025? Include the correct units.

2. 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.
   a. Find the number of books sold 2 months after it was released.

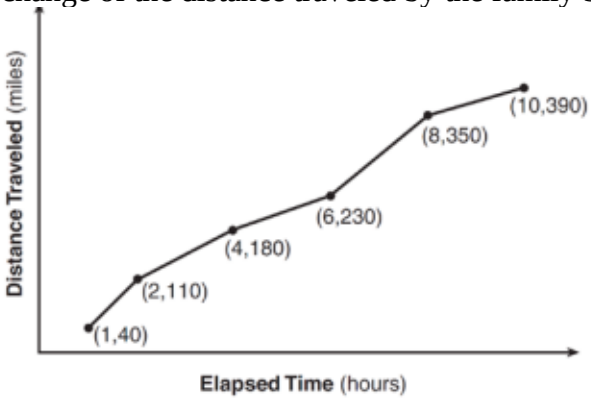
   b. Find the number of books sold 6 months after it was released.

   c. Find the average rate of change in the number of books sold between month 2 and month 6. Make sure to include correct units.

3. 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.



4. 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 $f'(1)$