In part a, the limit can be calculated because f(x) is a polynomial, meaning you can plug in the value where the limit is taken into the function. In terms of continuity, as polynomials are continuous everywhere, this function has continuity at every point in the domain.

In part b, the limit cannot be calculated because the function is not defined at x=0 because it is devisable by x, and you cannot divide by 0. In terms of continuity, because you cannot divide by 0, it is not continuous and discontinues at 0.

The average speed of the baseball between 5 and 6 seconds is 53.89̅.

The average speed of the baseball between 5 and 5.5 seconds is 51.45000000000002.

The average speed of the baseball between 5 and 5.1 seconds is 49.490000000000016.

The instantaneous speed of the baseball at 5 seconds is 49 meters per second.

The derivative of f at t=5 is 9.8t

The derivative at t=5 is the same as the velocity used in part d, meaning that evaluating for f’(t) at t+5, we are finding the instantaneous velocity at that time. Compared to part d, we confirm that we used the correct velocity. This means we use different formulas to verify that the calculations have been done correctly.

This model’s predicted selling price of a 5-year-old car with a condition rating of 8 IS $26200

The partial derivative ($2400) indicates the rate of change of the predicted selling price with respect to the condition rating. This means the selling price increases or decreases by $2400 for each unit of the condition rating.

The partial derivative (-$1800) indicates the rate of change of the predicted selling price with respect to the car's age. This means the selling price decreases by $1800 each year it gets older.