Hand this quiz in by Friday, Feb. 20 at 10 am to my mailbox, which is in the corridor outside of the Math Office, CU340. My mailbox, which has a slot for papers, is labeled Marian Manyo #26.

Show all of your work in a neat and organized manner. Do your own work.

**Q1:** The annual premium for a $6000 insurance policy against the theft of jewelry is $180. If the empirical probability that the jewelry will be stolen during the year is 1.5%, what is the expected value of this policy from the view of the insurance company if you take buy this insurance? Complete the payoff table and calculate the expected value.

<table>
<thead>
<tr>
<th>(x_i)</th>
<th>180</th>
<th>-58.20</th>
</tr>
</thead>
<tbody>
<tr>
<td>(p_i)</td>
<td>.985</td>
<td>.015</td>
</tr>
</tbody>
</table>

\[
E(x) = 180(0.985) - 58.20(0.015) = 177.30 - 8.73 = \$90.57
\]

**Q1:** George finds a company that charges $0.59 per day for each $1000 borrowed. If he borrows $4000 for 90 days, what amount will he repay and what annual interest rate will he be paying? Show your work or show your calculator work as described in class.

\[\text{Interest - 1 day} \times 4 = 2.36 \text{ \$/day}\]

\[\text{Interest for 90 days} = 2.36 \times 90 = \$212.40.\]

Using simple interest \(I = Prt\)

\[212.40 = 4000 \times r \times \frac{90}{360}\]

\[r = \frac{212.40}{4000 \times 0.25} = \frac{212.40}{1000} = 0.2124 \text{ or } 21.24\%\]

**Q2:** In a city, the housing costs have been increasing at a rate of 4.8% per year compounded annually for the last five years. If the house has a value of $320,000 now, what was its value five years ago? Show your calculator work as described in class.

\[\text{CI - compound interest } A = P(1+i)^n\]

\[
A = 320,000
\]

\[
P = \frac{320,000}{(1.048)^5} = P
\]

\[
P = \$253,130 \text{ to the nearest dollar}
\]
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Q2: George finds a company that charges $0.59 per day for each $1000 borrowed. If he borrows $4000 for 90 days, what amount will he repay and what annual interest rate will he be paying? Show your work or show your calculator work as described in class.

Q3: In a city, the housing costs have been increasing at a rate of 4.8% per year compounded annually for the past five years. If the house has a value of $320,000 now, what was its value five years ago? Show your calculator work as described in class.