1) Andrew borrows $2000 to purchase a computer. He agrees to pay it back in full 1.5 years later, and agrees to an interest rate of 7.5%. How much interest will he be charged, and what does he ultimately pay for the computer? ➂

/19

|  |  |
| --- | --- |
| Variables | Calculations: |
| Principal (P) =  |
| Rate (r) =  |
| Time (t) = |
| Conclusion: |

2) Jack invests $5,000 into a “certificate of deposit” investment that pays 2% per year simple interest. If he takes out the money in 2 months (0.167 years) how much interest will he have made, and how much did she take out? ➂

|  |  |
| --- | --- |
| Variables | Calculations: |
| Principal (P) =  |
| Time (t) =  |
| Rate (r) =  |
| Conclusion: |

3) Gemma borrowed some money to buy a new road bike 2 years ago at a rate of 5%. Now that she is paying it back, she has to pay $220 in interest. How much did she borrow to buy the bike? ➂

|  |  |
| --- | --- |
| Variables | Calculations: |
| Principal (P) =  |
| Interest (I) = |
| Time (t) =  |
| Conclusion: |

4) [10 marks]Consider the following situation: $10,000 is borrowed at an interest rate of 5% per year. You are find the ending balance (what must be paid back) using simple interest, and then compound interest.

**Simple Interest**

a) Using $I=P×r×t$, calculate the interest owed every 1 year:

b) Complete the following table like we did in class, tracking the amount owed at the end of each year. Plot each ending balance on the grid provided.

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Starting Balance** | **Rule for Calculating Ending Balance** | **Ending Balance** |
| 1 | $10,000 |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |
| 6 |  |  |  |
| 7 |  |  |  |
| 8 |  |  |  |
| 9 |  |  |  |
| 10 |  |  |  |

Visual:

**Compound Interest**

c) If the interest rate is 5%, what will you multiply the starting balance by to get the ending balance?

d) Complete the following table, tracking the amount owed at the end of each year. Plot each ending balance on the grid provided to see the effects of compounding interest.

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Starting Balance** | **Rule for Calculating Ending Balance** | **Ending Balance** |
| 1 | $10,000 |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |
| 6 |  |  |  |
| 7 |  |  |  |
| 8 |  |  |  |
| 9 |  |  |  |
| 10 |  |  |  |

Visual: