

Unit 06-03 - Calculating Interest and Payments

Multiple Choice

Identify the choice that best completes the statement or answers the question.

_____ 1. **Simple Interest**

Jessie purchased a used car from a small business. They offered to let him finance or borrow \$3200 for a term of 2 years at 11% a year using Simple Interest.



How much interest will Jessie have to pay the used car dealer?

- | | |
|----------|-------------|
| a. \$176 | c. \$387.20 |
| b. \$352 | d. \$704 |

_____ 2. **Compound Interest**

Nicole deposited \$4400 in a savings account earning 6% compounded monthly. If she makes no other deposits or withdrawals, how much will she have in her account in two years?



- | | |
|--------------|--------------|
| a. \$4959.50 | c. \$9342.76 |
| b. \$4928.00 | d. \$9328.00 |

_____ 3. The equation for compound interest is $A = P \left(1 + \frac{r}{n} \right)^{nt}$ where P is the initial amount invested, r is the interest rate as a decimal, n is the number of times compounded annually, and t is the number of years.

Determine the value of the account if the initial investment is **\$8,000** compounded **monthly** at a rate of **6%** after **10 years**.

- | | |
|--------------|----------------|
| a. \$8409.12 | c. \$14,326.78 |
| b. \$8480.00 | d. \$14,555.17 |

4. **Compound Interest**

Jackson deposited \$5,000 at 3.8% interest rate, compounded continuously, when he was 18 years old. How much will be in the account when he is 40 years old if he made no other deposits or withdrawals?



- a. \$10,000
b. \$11,535.60
c. \$11,024.91
d. \$23,650.87

5. The equation for compound interest is $A = P \cdot e^{rt}$ where P is the initial amount invested, r is the interest rate as a decimal, and t is the number of years.

Determine the value of the account if the initial investment is **\$3000** compounded **continuously** at a rate of **6%** after **7 years**.

- a. \$1260
b. \$4260
c. \$4300.42
d. \$4565.88

6. Which investment would be worth the most after **20 years**?

- a. An initial investment of **\$3000** compounded **annually** at a rate of **12%** after **20 years**.
b. An initial investment of **\$3000** compounded **quarterly** at a rate of **11.9%** after **20 years**.
c. An initial investment of **\$3000** compounded **continuously** at a rate of **11.8%** after **20 years**.

7. **Annual Percentage Rate (APR)**

Ms. Morrison is purchasing a house and needs to finance a \$150,000 mortgage from the bank with an annual percentage rate (APR) of 3.8%. She is financing it over 30 years and making monthly payments. What is the **monthly payment**?

$$\text{Monthly Payment} = \frac{P \cdot \frac{r}{n} \left(1 + \frac{r}{n}\right)^{nt}}{\left(1 + \frac{r}{n}\right)^{nt} - 1}$$



- a. \$416.67
b. \$698.94
c. \$833.33
d. \$1393.88

Name: _____

ID: A

8. **Annual Percentage Rate (APR)**

A family is purchasing a house and needs to finance a \$195,000 mortgage from the bank with an annual percentage rate (APR) of 5.3%. The family is financing it over 30 years and making monthly payments. What is the **total amount the family will pay back to the bank (to the nearest dollar)**?



$$\text{Monthly Payment} = \frac{P \cdot \frac{r}{n} \left(1 + \frac{r}{n}\right)^{nt}}{\left(1 + \frac{r}{n}\right)^{nt} - 1}$$

- a. \$195,000
- b. \$328,322

- c. \$389,822
- d. \$447,210