Name Solutions

A∞Ω
MATH@TD

MCR3U

11U U8: Simple and Compound Interest - Formative

Formulas: (and you may use your notes)

Simple $I = \text{Pr}t, \quad A = P(1+rt)$

Compound $A = P(1+i)^n$

Multiple Choice

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

$A = P(1+rt) = (725)\left(1+(0.052)(5)\right)$

1. Kevin invests $725 at 5.2%/a simple interest. What is the total amount in Kevin's account at the end of 5 years?
   a. $188.50
   b. $189.50
   c. $913.50
   d. $2610.00

C

$= 913.50$

2. What is the interest earned on $6500 at 8% simple interest for 9 months?
   a. $390
   b. $520
   c. $4860
   d. $6890

A

$I = Prt = 6500(0.08)(0.75) = \$390$

9 months

$A = P(1+rt)$

$= (6500)\left(1+0.08\left(\frac{9}{12}\right)\right)$

$= \$6890 \quad \therefore I = A - P$

Full Solution - Provide full and clear solutions to the following problems.

3. For an investment of $20 000 at 7.2%/a compounded semi-annually (2 times/year) for 7 years, what is the total interest earned?

Given	Want
$P = 20\,000$	I
$i = \frac{0.072}{2} = 0.036$	(get A; $I = A - P$)
$n = (7)(2) = 14$	

$A = P(1+i)^n$

$= 20\,000(1.036)^{14}$

$= \$32\,814.56$

$\therefore$ The total interest earned is

$I = A - P$

$= 32\,814.56 - 20000$

$= \$12\,814.56$

4. Maria borrows $12 000 at 9%/a interest compounded monthly (12 times/year) for 10 years. How much money will she owe at the end of 10 years?

Given	Want
$P = 12\,000$	A
$i = \frac{0.09}{12} = 0.0075$	
$n = (10)(12) = 120$	

$A = P(1+i)^n$

$= 12\,000(1.0075)^{120}$

$= \$29\,416.28$