

Name: **KEY**

Section 3.1 – Interest

1. Vince has been saving up all summer and before going back to school he has managed to amass \$5500. He decides to put it in a GIC that pays him an annual percentage rate of 6% and is locked in for 3 years. At the end of the three years, how much interest has he earned and how much total cash does he now have?

$P = 5500$
 $r = 0.06$
 $t = 3$

$I = Prt$

$I = 5500 \cdot (0.06)(3)$

$I = 990$

$I = \text{interest}$
 $r = \text{interest rate in } \%$
 $t = \text{time in yrs}$

$A = P + I \rightarrow A = 6490$

2. Mr. Herlaar borrowed \$7000 to build a new fence in his backyard. If the loan was a Simple Interest Loan and he paid \$735 in interest over a three-year period, what was the interest rate? And if he paid it back monthly, what were his monthly payments?

$P = 7000$
 $I = 735$
 $t = 3$
 $r = ?$

$I = Prt$

$735 = 7000r(3)$

$735 = 21000r$

$\frac{735}{21000} = r$

$r = 0.035$

$r = 3.5\%$

Payments: $\frac{7735}{36 \text{ months}}$

$= \$214.86$

3. Atlas received an inheritance of \$25 000, he kept \$3000 to spend, and invested the rest in a Compound Interest account. The account compounds daily (365) and has an annual percentage rate of 7.5%. If he keeps his money invested for 10 years, how much does he have and the end of the ten-year period? How much of it is interest?

$P = 22000$
 $n = 365$
 $t = 10$
 $r = 0.075$

$A = P \left(1 + \frac{r}{n}\right)^{nt}$

$A = 25000 \left(1 + \frac{0.075}{365}\right)^{365 \cdot 10}$
 $= 25000 \left(1 + \frac{0.075}{365}\right)^{3650}$
 $= \$52920.92$

$A - P = I$

$I = 27920.92$