

Exponential story Problem (Type 2)

⇒ Interest Problems.

$$A(t) = A_0 (b)^t$$

\uparrow initial \downarrow rate

Formula sheet

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

example 1: Invest \$500 in a GIC with an annual interest of 8%. How much will be there in 10 years?

$$A = 500(1.08)^{10}$$

$$= \$1079.46$$

Interest compounded (calculated) can be different terms.

Annually ⇒ per year

Semi-annually ⇒ twice a year (every 6 months)

Quarterly ⇒ 4 times per year

monthly ⇒ 12 times per year

ex. 2) \$500 invested

8% per year, compounded semi-annually
10 years

$$A = 500(1.04)^{20}$$

$$= 1095.56$$

$\left\{ \begin{array}{l} 8\% \text{ per year} \\ 8\% \div 2 \Rightarrow 4\% \text{ semi-annually} \end{array} \right.$

10 years ⇒ 20 times

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

$$1. \quad A = 56700(1.063)^2 = \$64069.24$$

6.3%
 $i = 0.063$
 $1 + 0.063$

$$2. \quad 7.3\% \div 2 \text{ (semi)}$$

$$\frac{0.073}{2} \quad i = 0.0365$$

$$A = 4400(1.0365)^4 = \$5078.44$$

$$3. \quad 8.2\% \Rightarrow 0.082 \div 4 \text{ (quarterly)}$$

$$i = 0.0205 \quad n = 2 \text{ yrs} \times 4$$

$$A = 12200(1.0205)^8 = \$14350.40$$

$$4. \quad \$58306.84$$

$$8. \quad \$504.12$$

$$5. \quad \$781.22$$

$$9. \quad \$161.19$$

$$6. \quad \$18360.37$$

$$10. \quad \$57391.41$$

$$7. \quad \$199.40$$