

SOLUTIONS...

1)

Paula's Investment:
 $5600 + 10(500) + (200)(12)(10)$
 $= 34600$
 Paula invested \$34600

Jonathan's Investment:
 $2000 + (55)(52)(10) + 4000$
 $= 34600$
 Jonathan invested \$34600

Paula and Jonathan will invest the same amount over the ten years.

2)

Use the financial application on your graphing calculator:

For single-payment investments, enter: Term in years, Present value, Annual interest rate, Compounding frequency

For regular-payment investments, enter: Number of payments, Regular payment amount, Payment frequency, Payments at Beginning or End of compounding period, Annual interest rate, Compounding frequency

Future Value (Paula)
 TFSA = \$6976.62
 CSBs = \$5892.88
 Savings Account = \$26 007.87

Portfolio total = \$38 877.37

Total future value = \$38 877.37

Future Value (Jonathan)
 GIC = \$3030.71
 Savings Account = \$31 329.72
 Bond (reinvested at 5 yrs*) = \$5955.45

Portfolio total = \$40 315.88

Total future value = \$40 315.88

* Jonathan's bond has a future value of \$4856.65 after five years, which he reinvests for another five years at 4.1%.

3)

Subtract the amount invested from the future value, then divide by the amount invested.

Rate of Return (Paula)
 $= \frac{38877.37 - 34600}{34600}$

= 0.123

Rate of Return (Jonathan)
 $= \frac{40315.88 - 34600}{34600}$

= 0.165

Jonathan's portfolio will have a rate of return of about 17%. This is about 5% higher than the rate of return from Paula's portfolio, which will be about 12%.

Jonathan's Portfolio

- 10-year \$2000 guaranteed investment certificate (GIC) earning 4.2%, compounded semi-annually
- Weekly deposits of \$55 to a **savings account** earning 1.8%, compounded weekly
- ~~Five-year~~ **\$4000** **bond** earning 3.9%, compounded quarterly and then reinvested in a 4.1% **bond**

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

$$A = 4000(1 + \frac{0.039}{4})^{4 \times 5}$$

5 years

$$A = 4856.65$$

Next 2 years

$$A = 4856.65(1 + \frac{0.041}{4})^{20}$$

$$= 5955.44$$

HOMework...

Quiz on *Thursday...

- Simple Interest

$$I = Prt \quad A = P + Prt$$

$$A = P + I \quad A = P(1 + rt)$$

- Compound Interest

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

- Rate of Return

$$ROR = \frac{\text{earn}}{\text{invested}} \times 100\%$$

- Present Value

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

- Regular Payments (TVM-Solver)

$$N =$$

$$I\% =$$

$$PV =$$

$$PMT =$$

$$FV =$$

$$P/Y =$$

$$C/Y =$$

$$PMT: END BEGIN$$

PRACTICE QUESTIONS...

p. 509:

Formulas...#1, 2a, 3, 4, 6, 7a

TVM-Solver...#8, 9, 10

p. 506: Self Test

p. 483: Mid-Chp Review

- Rule of 72

$$\text{doubling time} = \frac{72}{\text{rate}}$$