Name: _____ Date: _____

Section 7.1 Annuities

1. $1250 is invested at the end of each year for four years into a fund that pays 3.25% per year, compounded annually. Use a timeline to determine the future value of the annuity.

2. Use a TVM Solver or an Internet calculator to determine the future value of each annuity. Check your answer using a timeline.
- **a)** $300 is invested at the end of each month for nine months into an account that pays 2.65% per year, compounded monthly.
- **b)** $750 is deposited quarterly for two years into a fund that pays 8.25% per year, compounded quarterly.

3. Determine the monthly payment for a three-year loan on a $15 000 motorcycle at 5.9% per year, compounded monthly.

4. Determine the weekly deposit needed to save $1000 in one year if interest is earned at 0.25% per year, compounded weekly.

5. Determine the present value of each annuity. Use a timeline to check your answer.
- **a)** Monthly deposits of $375 at 5.75% per year compounded monthly for three years.
- **b)** Annual income of $4250 for five years from a fund that earns 4.24% per year, compounded annually.

6. Rajinder would like to borrow $7500. His bank offered him a three-year personal loan with monthly payments. The interest rate on the loan is 6.25% per year, compounded monthly.
- **a)** Determine Rajinder's monthly payment.
- **b)** Calculate the total amount that he will pay to the bank.
- **c)** How much interest will Rajinder pay over the life of the loan?

7. Miyako is in grade 12 and lives at home. She has a part-time job and earns $1200 per month. Miyako deposits $500 at the end of each month into an account that pays 2.1% per year, compounded monthly.
- **a)** How much was in Miyako's account at the end of one year?
- **b)** How much was in Miyako's account at the end of three years?
- **c)** Compare your answers to parts a) and b). Explain why the answer to part b) is not triple the answer to part a).
- **d)** Calculate the total amount that Miyako has deposited over the three years.
- **e)** How much interest has she earned in three years?

8. Enrique plans to take a four-year college program. He estimates he will need $7000 per year for each of the four years. Currently, his savings are in an account paying 3.2% per year, compounded annually. What is the minimum amount Enrique will need in his account when he starts college so he can graduate without debt?

9. **a)** What amount should be invested now at 4.75% per year, compounded annually, to generate a retirement income of $35 000 per year for 25 years?
- **b)** The sum of the payments is $35 000 × 25 or $875 000. Would the current amount be greater than or less than $875 000? Explain your reasoning.

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10. a) Which TVM Solver screen is correct for question 7, part b)?

A

```
N=12
I%=2.1
PV=0
PMT=-500
▪FV=6058.088205
P/Y=12
C/Y=12
PMT:END BEGIN
```

B

```
N=36
I%=.021
PV=0
PMT=-500
▪FV=18005.51359
P/Y=12
C/Y=12
PMT:END BEGIN
```

C

```
N=36
I%=2.1
PV=0
PMT=-500
▪FV=18562.34276
P/Y=12
C/Y=12
PMT:END BEGIN
```

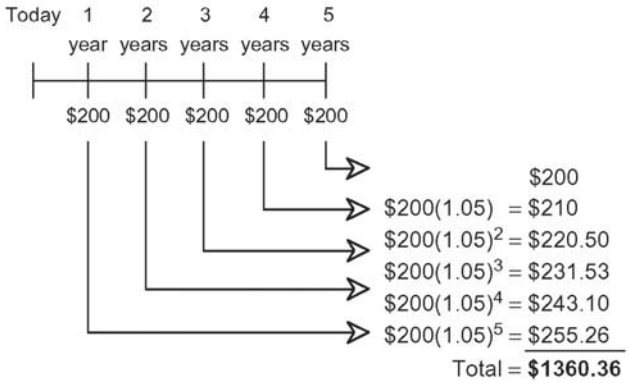
D

```
N=36
I%=2.1
PV=0
PMT=-500
▪FV=18562.67742
P/Y=12
C/Y=36
PMT:END BEGIN
```

b) Explain the error in each of the other screens.

11. Loretta currently has no savings. She plans to purchase a new laptop computer in one year. By then she would like to have $2500 in savings. She can invest her money into an account that pays 3.1% per year, compounded monthly. Determine the amount she must deposit at the end of each month to reach her goal.

12. Which scenario could be modelled by this timeline?



A $200 invested at 0.05% per year, compounded annually, for five years.
B $200 invested at 50% per year, compounded annually, for five years.
C $200 invested at 5% per year, compounded monthly, for five years.
D $200 invested at 5% per year, compounded annually, for five years.

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