

Unit C: Personal Finance

Half Course V

HALF COURSE V

Unit C: Personal Finance

Hours: 11

General Learning Outcome:

Demonstrate an awareness of and show the ability to solve consumer problems involving insurance, mortgages, and loans. (Loans are studied in *Senior 3 Consumer Mathematics*.)

The intent of this unit is to have students become aware of why we have different types of insurance and what is involved in purchasing a house and obtaining a mortgage.

Specific Learning Outcomes

- C-1 Solve problems involving different types of insurance.
- C-2 Solve problems involving mortgages.
- C-3 Describe the costs involved in purchasing a home.
- C-4 Interpret the Gross Debt Service Ratio to determine the economic feasibility of a home purchase.

PERSONAL FINANCE

Instructional Materials

- *Essentials in Mathematics 12*
- Blackline Masters
- scientific calculator
- spreadsheet program

**PRESCRIBED LEARNING
OUTCOMES**

General Outcome

Demonstrate an awareness of and show the ability to solve consumer problems involving insurance, mortgages, and loans.

Specific Outcome(s)

C-1 solve problems involving different types of insurance

SUGGESTIONS FOR INSTRUCTION

Note: Material from this unit should be incorporated into the Career/Life Project in Half Course VI. It is relevant to personal lifestyle, budgeting, home ownership, and the like.

Types of insurance that can be examined here include

- a) renter's and homeowner's
- b) life
- c) health
- d) dental
- e) eye care
- f) long-term disability

Note: The focus of our explorations will be life and property insurance. New vocabulary and concepts relating to insurance are introduced. The definitions are in the *Essentials of Mathematics 12* text, but students will need to increase their familiarity with them through discussion and brainstorming. Points for discussion can include

- the need for life insurance
- how to decide how much insurance is needed
- different types of life insurance
- terminology—deductible, premium, policy, face-value, beneficiary
- why smokers pay more for life insurance
- why people pay more for life insurance as they age

Example

A female smoker aged 27 buys a \$100,000.00, 10-year term life insurance policy. What will she pay per month?

Solution

Use life insurance tables in the Student Handbook. Insurance rates are given here per \$1000.00; hence,

$$100 \times \$1.34 + \$75.00 = \$209.00 \text{ per annum}$$

$$\$209.00 \times 0.09 = \$18.81 \text{ per month}$$

✓ Communications	Patterns
✓ Connections	✓ Problem Solving
✓ Number Sense	Reasoning
✓ Organization and Structure	Technology Visualization

— continued

SUGGESTIONS FOR ASSESSMENT	SUGGESTED LEARNING RESOURCES
<p>Problem</p> <p>A male smoker aged 25 buys a \$50,000 whole-life policy.</p> <ol style="list-style-type: none"> What will he pay per year? What will he pay per month? What is the total difference in premium over a year when you pay per month? Why do people like to pay on a monthly basis? How much less would this person pay per year if he did not smoke? 	<p>Print</p> <p><i>Senior 4 Consumer Mathematics (45S) Part V: A Course for Distance Learning.</i> Winnipeg, MB: Manitoba Education, Training and Youth, 2002. — Module 1, Lessons 1, 2</p> <p>Baron, C., et al. <i>Essentials of Mathematics 12.</i> Victoria, BC: British Columbia Ministry of Education, 2003. [ISBN 0-7726-4997-9]</p> <p>Canada Mortgage and Housing Corporation (CMHC/SCHL). <i>A Consumer Guide and Workbook: Home Buying Step by Step.</i> Toronto, ON: CMHC, 1998-2000. [1-800-668-2642]</p> <p>Pamphlets available from the Insurance Bureau of Canada [1-800-377-6378]: <i>Insurance: Who Needs It?</i> <i>Home Insurance Explained</i></p>

**PRESCRIBED LEARNING
OUTCOMES**

C-1 solve problems involving different types of insurance
– *continued*

SUGGESTIONS FOR INSTRUCTION

Notes: The \$1.34 comes from the body of the table. The \$75.00 is a policy factor added to all annual premiums. Monthly payments are calculated by multiplying the annual premium by 0.09. Sometimes monthly payments are referred to as “autopay” and are deducted directly from your bank account.

Discuss the need for homeowner’s insurance.

- How do you decide how much insurance you need?
- Why is it important to review with the insurance broker exactly what is covered?
- Discuss the two basic forms of homeowner’s insurance: standard and comprehensive.
- Discuss the need for insurance for the contents of condominiums and apartments.

Note: The location of the home affects how much property insurance costs.

- Area 1: homes within the city limits
- Area 2: Protected: outside the city, but within 300 m of a fire hydrant
- Area 3: Semi-protected: outside areas 1 and 2 but within 13 km of a fire hall
- Area 4: Unprotected: homes located more than 13 km from a fire hall

Example

Diane and Rod have a home in Winnipeg worth \$125,000. Find the cost of a homeowner’s comprehensive policy with:

- a) a \$500 deductible
- b) a \$200 deductible

Solution

Using the premium table in the Blackline Masters:

- a) The premium for \$125,000.00 is \$510.
- b) To reduce the deductible to \$200, the premium is increased by 10%: $\$510 + \$51 = \$561$.

✓ Communications	Patterns
✓ Connections	✓ Problem Solving
✓ Number Sense	Reasoning
✓ Organization and Structure	Technology Visualization

SUGGESTIONS FOR ASSESSMENT

Problems

1. What is the cost for homeowner's insurance for a house that has a replacement cost of \$120,000?
2. What are some of the factors in determining the cost of homeowner's or tenant's insurance?
3. A couple has a house they would like to insure for \$250,000.00. They have not had any claims in the past and would like a comprehensive package. If they get a \$500.00 deductible, what will they pay for the insurance?
4. Have students find out what it would cost them to have insurance for an apartment in which they might live. Discuss what the contents would be worth, then have them calculate the cost of the insurance.
5. Calculate the cost of obtaining health, dental, and eye care insurance. Calculate the cost of life insurance for a whole-life policy of \$50,000 for yourself.

SUGGESTED LEARNING RESOURCES

Other

- Invite a life insurance agent to speak to your students.
- Invite a homeowner's insurance agent to speak to your students.

**PRESCRIBED LEARNING
OUTCOMES**

C-2 solve problems
involving mortgages

SUGGESTIONS FOR INSTRUCTION

Types of mortgages that can be examined here include

- a) closed
- b) open
- c) convertible
- d) fixed-rate
- e) variable-rate

Discuss the different types of mortgages available.

Discuss which type of mortgage is suitable for different people.

Be able to calculate the following items, using a calculator and/or spreadsheet programming:

- payment
- interest
- principal
- unpaid balance
- owner's equity
- monthly payments at a particular rate over different time periods
- monthly payments of different rates over a particular time period
- difference between monthly payment and bi-weekly payment at a particular rate over a specified time period

Students may develop a template, using appropriate terms and formulas to solve the problems.

Note: Work with the mortgage calculations can be done easily on a spreadsheet program. It is advised that students first use the Owner's Equity form found in the Blackline Masters to manually work with the calculations. Following these simple steps will help:

- a) enter the unpaid balance (mortgage) and the owner's equity (down payment)
- b) find the monthly payment using the amortization table
- c) find the interest for that month using the formula

$$\text{unpaid balance} \times \frac{\text{rate}}{12}$$

— *continued*

Communications	✓ Patterns
✓ Connections	✓ Problem Solving
✓ Number Sense	✓ Reasoning
✓ Organization and Structure	✓ Technology Visualization

SUGGESTIONS FOR ASSESSMENT

Problems

1. What is the difference between an open and a closed mortgage?
2. If you obtain a mortgage of \$80,000 for 20 years at a rate of 6.75%, find the monthly payment. What would the monthly payment be if you borrowed this amount for 15 years?
3. How much interest would be paid for the first and second months in (2) above?

SUGGESTED LEARNING RESOURCES

Print

Senior 4 Consumer Mathematics (45S) Part V: A Course for Distance Learning.
 Winnipeg, MB: Manitoba Education and Training, 2000.
 — Module 1, Lessons 3, 4

Pamphlets from a bank on mortgage types

Internet

Experiment with mortgage calculators on major bank websites:
 <www.rbc.com>
 <www.cibc.com>
 <www.scotiabank.com>

<p>PRESCRIBED LEARNING OUTCOMES</p>	<p>SUGGESTIONS FOR INSTRUCTION</p>
<p>C-2 solve problems involving mortgages – <i>continued</i></p>	<p>d) subtract this interest from the monthly payment to get the principal e) add the principal to the owner’s equity f) subtract the principal from the unpaid balance g) using this new unpaid balance, go back to step (c)</p> <p>Students should notice that the interest paid actually goes down slightly each month, and the amount of principal increases. This is due to the unpaid balance or amount of the mortgage going down each month.</p>
<p>C-3 describe the costs involved in purchasing a home</p>	<p>Discuss the different terms that are related to these topics: down payment, inspection fee, mortgage, application fee, service charges, legal fee, closing cost, assets, debt-equity ratio, liabilities.</p> <p>Discuss why there are additional costs besides the cost of the house itself. These are “one-time” costs only.</p> <p>Example</p> <p>The Jones family lives in Portage la Prairie and is relocating to Winnipeg. They purchase a house for \$140,000.00 and hire a mover to move their belongings. The mover charges \$1700.00. A lawyer is hired to look after legalities for a fee of \$900.00. An appraisal is done of the property for a cost of \$425.00. The possession date is July 9, with the first payment due on July 15. The interest adjustment is \$105.00. Property taxes are \$2150.00, for which the Jones family has agreed to pay for the months of July-December.</p> <p>Before moving, the Jones family wants to redo the yard for \$2500.00, and replace the stove and fridge for \$630.00 and \$825.00, respectively. They have agreed to split the cost of the appliances with the sellers. They want to replace the drapes with vertical blinds for \$1200.00 and paint the bedrooms at a cost of \$680.00. The cost to hook up the phone is \$25.00 and to activate the natural gas is \$55.00. Their annual premium for insurance increases to \$540.00 from \$325.00 per year and they pay the additional for the remaining six months.</p> <p>Provide students the chart (Costs in Purchasing a Home) given in the Blackline Master section when answering questions on additional costs.</p>

✓ Communications	Patterns
✓ Connections	Problem Solving
✓ Number Sense	✓ Reasoning
✓ Organization and Structure	Technology Visualization

— *continued*

SUGGESTIONS FOR ASSESSMENT

SUGGESTED LEARNING
RESOURCES

Problems

1. Describe six additional costs in purchasing a home, besides the cost of the home itself.
2. If property taxes have been paid for the year (\$3085.00) and the purchasers of a home take possession of the property in August, what portion of the property taxes will be paid by the purchaser?
3. If a buyer increases the homeowner's insurance premium to \$450.00 from \$350.00 per year and pays for seven of the 12 months in the year, what is the additional cost for the buyer?

Print

Senior 4 Consumer Mathematics (45S) Part V: A Course for Distance Learning.
Winnipeg, MB: Manitoba Education, Training and Youth, 2002.
— Module 1, Lesson 6

Essentials of Mathematics 12.
Chapter 1: Personal Finance, Exploration 3

**PRESCRIBED LEARNING
OUTCOMES**

C-3 describe the costs involved in purchasing a home
– *continued*

SUGGESTIONS FOR INSTRUCTION

Solution

Appraisal Fees	\$ 425.00
Inspection Costs	\$
Property Survey	\$
Insurance—High Ratio Mortgage	\$
Home Insurance	\$ 107.50
Interest Adjustment	\$ 105.00
Prepaid Property Taxes and Utilities	\$ 1,075.00
Legal Fees and Disbursements	\$ 900.00
Sales Tax	\$
Moving Expenses	\$ 1,700.00
Service Charges	\$ 80.00
Immediate Repairs	\$ 2,500.00
Appliances	\$ 727.50
Decorating Costs	\$ 1,880.00
Total Additional Costs	\$ 9,500.00

In the above table:

- Home Insurance: $(\$540.00 - \$325.00)(6/12) = \$107.50$
- Prepaid Taxes: $(\$2150.00)(6/12) = \1075.00
- Appliances: $(\$630.00 + \$825.00)(6/12) = \$727.50$

✓ Communications	Patterns
✓ Connections	Problem Solving
✓ Number Sense	✓ Reasoning
✓ Organization and Structure	Technology Visualization

SUGGESTIONS FOR ASSESSMENT	SUGGESTED LEARNING RESOURCES
<p>Problems (continued)</p> <p>4. The Smiths live in Winnipeg and Mr. Smith has accepted a job in Brandon.</p> <ul style="list-style-type: none"> • They purchased a house in Brandon for \$150,000, and hired a mover to move their belongings. The moving charges are \$1800. • Their lawyer fees are \$1000. • An appraisal was done on their property for a fee of \$140. A survey of the property was done for a fee of \$375. They called in a house inspector to assess the condition of the new house. The inspector charged \$400 and recommended that the siding be replaced. • The Smiths' possession date is August 5th. The interest adjustment is \$457. Annual property taxes are \$2850, and the Smiths agree to pay for the five months from August to December. • Before moving in, the Smiths want to build a fence and re-side the house at a cost of \$5000, replace the carpet in the living room at a cost of \$4200, and paint the master bedroom and the kitchen at a cost of \$650. • The stove has to be replaced at a cost of \$850. • They increase their annual insurance premium to \$590 from \$425 per year and pay the additional amount for the remaining five months of the policy year. • The cost to hook up the phone is \$65 and the cost to activate the natural gas is \$45. 	<p>Guest speakers—buyer, real-estate salesperson</p>

**PRESCRIBED LEARNING
OUTCOMES**

C-4 interpret the Gross Debt Service Ratio to determine the economic feasibility of a home purchase

SUGGESTIONS FOR INSTRUCTION

Affordable Housing

- discuss the importance of buying a home within your financial means
- discuss the impact of the additional expenses on home affordability

Gross debt service ratio =

$$\frac{\text{actual monthly mortgage payment} + \text{property taxes} + \text{heating}}{\text{gross monthly income}} \times 100$$

For the preceding home purchase activity, either provide students with the table (see Blackline Masters), or have them create and save a template on the computer.

Example

A person decided to buy a house worth \$85,000.00. The down payment will be \$6000.00, the monthly property taxes are \$120.00, and the heating costs are \$110.00 per month. Calculate the maximum affordable price, the monthly mortgage payment, and the gross debt ratio if the bank will finance the house at 7.50% for 25 years. The gross monthly income is \$2500.00.

This formula will help you determine the price of the home you can afford.

(See page V-C-16.)

✓ Communications	Patterns
✓ Connections	Problem Solving
✓ Number Sense	✓ Reasoning
Organization and Structure	Technology Visualization

— *continued*

SUGGESTIONS FOR ASSESSMENT

Problem

Karen wants to buy a house worth \$90,500.00. She makes a down payment of \$4000.00. Monthly property taxes are \$165.00 and heating costs are \$95.00 per month. Calculate the maximum affordable price, the monthly mortgage payment, and the gross debt service ratio if the bank will finance the house at 6.5% for 25 years. Karen's gross monthly income is \$2800.00.

SUGGESTED LEARNING
RESOURCES

Print

Senior 4 Consumer Mathematics (45S) Part V: A Course for Distance Learning.
Winnipeg, MB: Manitoba Education, Training and Youth, 2002.
— Module 1, Lesson 5

Essentials of Mathematics 12.
Chapter 1: Personal Finance, Exploration 3

PRESCRIBED LEARNING OUTCOMES

C-4 interpret the Gross Debt Service Ratio to determine the economic feasibility of a home purchase
– *continued*

SUGGESTIONS FOR INSTRUCTION

The formula:	Your calculations:
Gross monthly household income	\$ 2,500.00
Multiply by 32%	x 0.32
Total affordable household expenses	= \$ 800.00
Subtract	
Monthly property taxes	– 120.00
Monthly heating costs	– 110.00
One half of condo/strata fees (if applicable)	– _____
Monthly mortgage payment your household can afford:	= \$ 570.00
To calculate total mortgage amount, divide by estimated interest rate factor which corresponds to your interest rate (see table below).	0.00732
Maximum amount of mortgage you can afford	= \$77,868.85
Add your cash down payment	+ 6,000.00
Your maximum affordable price	= \$83,868.85
Actual mortgage payment (= 0.00732 x [\$85,000.00 – \$6,000.00])	\$ 578.28
Gross debt service ratio	32.3%

Interest Rate Factor Table					
Rate	Factor	Rate	Factor	Rate	Factor
6.0%	0.00640	8.0%	0.00763	10.0%	0.00894
6.5%	0.00670	8.5%	0.00795	10.5%	0.00928
7.0%	0.00700	9.0%	0.00828	11.0%	0.00963
7.5%	0.00732	9.5%	0.00861	11.5%	0.00997

This table is based on 25-year amortization. The figures used in this table do not necessarily reflect current market rates.

Note: The table is available as a Blackline Master.

<ul style="list-style-type: none"> ✓ Communications ✓ Connections ✓ Number Sense 	<ul style="list-style-type: none"> Patterns Problem Solving ✓ Reasoning Technology Visualization
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SUGGESTIONS FOR ASSESSMENT

SUGGESTED LEARNING
RESOURCES

Blackline Masters

Table 1: 10-Year Term

Term Plus												
AGE	Male Non-Smoker			Female Non-Smoker			Male Smoker			Female Smoker		
	Issue Rate per \$1,000			Issue Rate per \$1,000			Issue Rate per \$1,000			Issue Rate per \$1,000		
	\$100,000 \$249,999	\$250,000 \$499,999	\$500,000 \$3,000,000	\$100,000 \$249,999	\$250,000 \$499,999	\$500,000 \$3,000,000	\$100,000 \$249,999	\$250,000 \$499,999	\$500,000 \$3,000,000	\$100,000 \$249,999	\$250,000 \$499,999	\$500,000 \$3,000,000
20	0.85	0.81	0.77	0.80	0.76	0.73	1.43	1.36	1.30	1.32	1.25	1.20
21	0.85	0.81	0.77	0.80	0.76	0.73	1.43	1.36	1.30	1.32	1.25	1.20
22	0.85	0.81	0.77	0.80	0.76	0.73	1.43	1.36	1.30	1.32	1.25	1.20
23	0.85	0.81	0.77	0.80	0.76	0.73	1.43	1.36	1.30	1.32	1.25	1.20
24	0.85	0.81	0.77	0.80	0.76	0.73	1.43	1.36	1.30	1.32	1.25	1.20
25	0.85	0.81	0.77	0.80	0.76	0.73	1.43	1.36	1.30	1.32	1.25	1.20
26	0.86	0.82	0.78	0.80	0.76	0.73	1.47	1.40	1.34	1.33	1.27	1.21
27	0.87	0.83	0.79	0.80	0.76	0.73	1.52	1.44	1.39	1.34	1.28	1.22
28	0.88	0.84	0.80	0.80	0.76	0.73	1.56	1.49	1.42	1.35	1.29	1.23
29	0.89	0.85	0.81	0.80	0.76	0.73	1.61	1.53	1.46	1.36	1.30	1.24
30	0.90	0.86	0.82	0.80	0.76	0.73	1.65	1.57	1.51	1.38	1.31	1.25
31	0.96	0.91	0.87	0.86	0.82	0.78	1.78	1.69	1.62	1.47	1.40	1.34
32	1.02	0.97	0.93	0.92	0.87	0.84	1.91	1.82	1.74	1.57	1.50	1.43
33	1.08	1.03	0.98	0.98	0.93	0.89	2.05	1.95	1.86	1.67	1.58	1.52
34	1.14	1.08	1.04	1.04	0.99	0.95	2.18	2.07	1.98	1.77	1.68	1.62
35	1.20	1.14	1.09	1.10	1.05	1.00	2.31	2.20	2.10	1.87	1.78	1.71
36	1.34	1.27	1.22	1.17	1.11	1.06	2.60	2.46	2.37	2.02	1.93	1.84
37	1.48	1.41	1.35	1.24	1.18	1.13	2.88	2.74	2.62	2.18	2.07	1.98
38	1.62	1.54	1.47	1.31	1.24	1.19	3.17	3.01	2.88	2.33	2.21	2.12
39	1.76	1.67	1.60	1.38	1.31	1.26	3.45	3.28	3.15	2.49	2.37	2.27
40	1.90	1.81	1.73	1.45	1.38	1.32	3.74	3.55	3.40	2.64	2.51	2.40
41	2.06	1.96	1.87	1.56	1.48	1.42	4.22	4.02	3.84	2.90	2.76	2.64
42	2.22	2.11	2.02	1.67	1.59	1.52	4.71	4.48	4.28	3.17	3.01	2.88
43	2.38	2.26	2.17	1.78	1.69	1.62	5.19	4.93	4.73	3.43	3.26	3.12
44	2.54	2.41	2.31	1.89	1.80	1.72	5.68	5.39	5.17	3.70	3.51	3.37
45	2.70	2.57	2.46	2.00	1.90	1.82	6.16	5.85	5.61	3.96	3.76	3.61
46	3.03	2.88	2.76	2.23	2.12	2.03	6.60	6.27	6.01	4.49	4.27	4.08
47	3.36	3.19	3.06	2.46	2.34	2.24	7.04	6.69	6.40	5.02	4.76	4.57
48	3.69	3.51	3.36	2.69	2.56	2.45	7.48	7.11	6.81	5.54	5.27	5.05
49	4.02	3.82	3.66	2.92	2.77	2.66	7.92	7.52	7.21	6.07	5.76	5.52
50	4.35	4.13	3.96	3.15	2.99	2.87	8.36	7.94	7.61	6.60	6.27	6.01
51	4.88	4.64	4.44	3.40	3.23	3.09	9.26	8.80	8.43	7.24	6.88	6.59
52	5.41	5.14	4.92	3.65	3.47	3.32	10.16	9.66	9.25	7.88	7.48	7.17
53	5.94	5.64	5.41	3.90	3.71	3.55	11.07	10.52	10.07	8.51	8.09	7.74
54	6.47	6.15	5.89	4.15	3.94	3.78	11.97	11.37	10.89	9.15	8.69	8.33
55	7.00	6.65	6.37	4.40	4.18	4.00	12.87	12.23	11.72	9.79	9.31	8.91
56	7.60	7.22	6.92	4.91	4.66	4.47	13.60	12.91	12.38	10.52	9.99	9.57
57	8.20	7.79	7.46	5.42	5.15	4.93	14.32	13.61	13.04	11.24	10.68	10.23
58	8.80	8.36	8.01	5.93	5.63	5.40	15.05	14.30	13.70	11.97	11.37	10.89
59	9.40	8.93	8.55	6.44	6.12	5.86	15.77	14.98	14.36	12.69	12.06	11.55
60	10.00	9.50	9.10	6.95	6.60	6.32	16.50	15.68	15.02	13.42	12.75	12.21
61	11.60	11.02	10.56	7.86	7.47	7.15	18.70	17.77	17.02	14.87	14.12	13.53
62	13.20	12.54	12.01	8.77	8.33	7.98	20.90	19.86	19.02	16.32	15.51	14.85
63	14.80	14.06	13.47	9.68	9.20	8.81	23.10	21.95	21.02	17.78	16.89	16.18
64	16.40	15.58	14.92	10.59	10.06	9.64	25.30	24.04	23.02	19.23	18.27	17.50
65	18.00	17.10	16.38	11.50	10.93	10.47	27.50	26.13	25.03	20.68	19.65	18.82
66*	19.60	18.62	17.84	12.41	11.79	11.29	29.70	28.22	27.03	22.13	21.02	20.14
67*	21.10	20.14	19.29	13.32	12.65	12.12	31.90	30.31	29.03	23.58	22.41	21.46
68*	22.80	21.66	20.75	14.23	13.52	12.95	34.10	32.40	31.03	25.04	23.78	22.78
69*	24.40	23.18	22.20	15.14	14.38	13.78	36.30	34.49	33.03	26.49	25.17	24.10
70*	26.00	24.70	23.66	16.05	15.25	14.61	38.50	36.58	35.04	27.94	26.54	25.42
71*	27.60	26.22	25.12	16.96	16.11	15.43	40.70	38.67	37.04	29.39	27.92	26.75
72*	29.20	27.74	26.57	17.87	16.98	16.26	42.90	40.76	39.04	30.84	29.30	28.07
73*	30.80	29.26	28.03	18.78	17.84	17.09	45.10	42.85	41.04	32.30	30.68	29.39
74*	32.40	30.78	29.48	19.69	18.71	17.92	47.30	44.94	43.04	33.75	32.07	30.71

Add policy fee of \$75 per year
 Semi-annual payment (multiply annual premium by 0.52)
 Monthly payment (multiply annual premium by 0.09)

Table 2: Whole-Life Insurance

WHOLE-LIFE									
Issue Age	Male Non-Smoker	Female Non-Smoker	Male Smoker	Female Smoker	Issue Age	Issue Age	Male Under 18	Female Under 18	Issue Age
	Issue Rate per \$1,000	Issue Rate per \$1,000	Issue Rate per \$1,000	Issue Rate per \$1,000			Issue Rate per \$1,000	Issue Rate per \$1,000	
	Premium Rate	Premium Rate	Premium Rate	Premium Rate			Premium Rate	Premium Rate	
18	3.50	2.82	4.31	3.13	18	0	1.75	1.53	0
19	3.54	2.85	4.41	3.20	19	1	1.78	1.56	1
20	3.60	2.89	4.51	3.26	20	2	1.80	1.59	2
21	3.96	3.04	4.72	3.44	21	3	1.89	1.63	3
22	4.07	3.20	4.93	3.62	22	4	1.98	1.67	4
23	4.17	3.35	5.15	3.81	23	5	2.05	1.71	5
24	4.28	3.51	5.36	3.99	24	6	2.12	1.75	6
25	4.38	3.66	5.57	4.17	25	7	2.24	1.82	7
26	4.61	3.86	5.88	4.41	26	8	2.35	1.89	8
27	4.82	4.05	6.19	4.66	27	9	2.47	1.97	9
28	5.05	4.25	6.49	4.90	28	10	2.58	2.05	10
29	5.26	4.44	6.80	5.15	29	11	2.71	2.16	11
30	5.46	4.64	7.11	5.39	30	12	2.83	2.27	12
32	5.76	4.90	7.56	5.72	32	13	3.01	2.34	13
32	6.03	5.16	8.01	6.04	32	14	3.19	2.41	14
33	6.30	5.41	8.45	6.37	33	15	3.31	2.50	15
34	6.59	5.67	8.90	6.69	34	16	3.42	2.58	16
35	7.11	5.93	9.35	7.02	35	17	3.46	2.66	17
36	7.32	6.31	10.04	7.50	36				
37	7.78	6.70	10.74	7.98	37				
38	8.25	7.08	11.43	8.47	38				
39	8.71	7.47	12.13	8.95	39				
40	9.28	7.85	12.82	9.43	40				
41	9.75	8.42	13.86	10.14	41				
42	10.32	8.99	14.90	10.85	42				
43	10.90	9.55	15.95	11.55	43				
44	11.48	10.12	16.99	12.26	44				
45	12.40	10.69	18.03	12.97	45				
46	12.81	11.21	19.15	13.68	46				
47	13.55	11.73	20.26	14.38	47				
48	14.28	12.26	21.38	15.09	48				
49	15.02	12.78	22.49	15.79	49				
50	16.34	13.30	23.61	16.50	50				
51	16.70	14.03	25.06	17.44	51				
52	17.63	14.76	26.52	18.38	52				
53	18.56	15.49	27.97	19.32	53				
54	19.51	16.22	29.43	20.26	54				
55	21.15	16.95	30.88	21.20	55				
56	21.79	17.93	32.73	22.39	56				
57	23.17	18.91	34.57	23.58	57				
58	24.53	19.89	36.42	24.78	58				
59	25.89	20.87	38.26	25.97	59				
60	27.70	21.85	40.11	27.16	60				
61	29.32	23.21	42.40	28.71	61				
62	31.39	24.57	44.70	30.25	62				
63	33.45	25.93	46.99	31.80	63				
64	35.52	27.29	49.29	33.34	64				
65	37.58	28.65	51.58	34.89	65				
66	39.73	30.08	54.48	36.29	66				
67	41.95	31.59	56.60	37.74	67				
68	44.33	33.17	58.81	39.25	68				
69	46.83	34.82	61.12	40.82	69				
70	49.45	36.57	63.51	42.45	70				
71	52.22	38.39	65.98	44.15	71				
72	55.15	40.31	68.56	45.91	72				
73	58.23	42.33	71.23	47.75	73				
74	61.50	44.45	74.01	49.66	74				
75	64.94	46.67	76.89	51.65	75				

Add policy fee of \$75.00 per year.

Semi-annual payment (multiply annual premium by 0.52)
 Monthly payment (multiply annual premium by 0.09)

Table 3: Cash Surrender Values

WHOLE-LIFE																						
MALE Cash Surrender Value per \$1,000 of Sum Assured											Policy Year	FEMALE Cash Surrender Value per \$1,000 of Sum Assured										
Issue Age												Issue Age										
20	25	30	35	40	45	50	55	60	65	70		20	25	30	35	40	45	50	55	60	65	70
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	
1	1	1	2	3	5	7	9	11	15	18	4	1	1	1	1	2	4	5	7	9	12	
2	3	4	6	8	14	18	23	28	35	41	5	1	2	3	5	7	11	14	19	24	30	
4	6	8	11	14	23	29	36	44	54	64	6	3	4	6	8	11	18	23	30	38	48	
6	8	11	15	20	32	40	50	61	74	87	7	4	6	9	12	16	25	33	42	52	65	
7	10	14	19	25	40	51	64	78	94	110	8	6	8	11	15	20	32	42	53	67	83	
8	13	18	24	30	49	62	77	94	113	133	9	7	10	14	19	24	40	51	65	81	100	
10	15	21	28	36	58	73	91	111	133	156	10	9	12	16	22	29	47	60	76	95	118	
14	21	29	38	52	91	109	130	152	175	201	11	12	17	23	30	42	75	91	111	133	158	
17	27	37	48	68	124	145	168	193	218	245	12	15	22	29	38	55	103	122	146	171	199	
21	34	44	58	83	157	181	207	234	260	290	13	18	27	36	46	68	131	154	181	208	239	
24	40	52	68	99	190	217	246	275	303	335	14	20	32	42	55	81	160	185	216	246	280	
28	46	60	78	115	223	252	284	316	345	380	15	23	37	49	63	94	188	216	251	284	320	
33	54	73	94	141	256	288	323	356	387	424	16	28	44	59	76	116	216	247	285	321	361	
39	62	86	110	167	289	324	362	397	430	469	17	32	50	70	89	138	244	278	320	359	401	
44	69	99	126	193	322	360	401	438	472	514	18	37	56	80	103	159	273	310	355	397	442	
50	77	112	142	219	355	396	439	479	515	558	19	41	63	91	116	181	301	341	390	434	482	
55	85	125	158	245	388	432	478	520	557	603	20	46	69	102	129	203	329	372	425	472	523	
63	96	140	181	284	405	451	499	544	587	626	21	52	78	114	149	237	348	393	448	498	555	
71	107	154	204	324	423	470	520	568	616	650	22	59	87	126	168	272	367	414	471	525	587	
78	117	169	226	363	440	489	541	592	646	673	23	65	96	138	188	306	387	435	494	551	618	
86	128	183	249	403	458	508	562	616	675	698	24	71	105	151	207	341	406	456	517	578	650	
94	139	198	272	442	475	527	582	640	705	726	25	78	114	163	226	375	425	477	540	604	682	
105	154	217	312	458	493	546	603	664	734	756	26	87	126	179	262	393	444	498	563	630	714	
116	168	236	353	474	510	565	624	688	764	794	27	96	139	195	297	411	463	519	586	657	746	
127	183	254	393	490	528	583	645	712	793	841	28	105	151	212	332	429	482	539	609	683	777	
138	197	273	434	506	545	602	666	736	823	906	29	114	163	228	367	446	502	560	632	710	809	
149	212	292	474	522	563	621	687	760	852	1,000	30	124	176	244	402	464	521	581	655	736	841	
164	231	333	489	538	580	640	708	784	882	-	31	136	192	276	419	482	540	602	678	762	873	
179	250	374	504	554	598	659	729	808	911	-	32	149	209	308	436	500	559	623	701	789	905	
193	269	415	519	570	615	678	749	832	941	-	33	161	225	340	453	518	578	644	724	815	936	
208	288	456	534	585	633	697	770	856	970	-	34	174	241	372	470	536	597	665	747	842	968	
223	307	497	549	601	650	716	791	880	1,000	-	35	186	258	404	487	554	617	686	770	868	1,000	
242	348	511	564	617	668	735	812	904	-	-	36	202	287	421	505	571	636	707	798	894	-	
261	389	526	579	633	685	754	833	928	-	-	37	219	316	438	522	589	655	728	816	921	-	
280	429	540	594	649	703	773	854	952	-	-	38	235	345	455	539	607	674	749	839	947	-	
299	470	554	609	665	720	792	875	976	-	-	39	252	375	472	556	625	693	770	862	974	-	
318	511	569	624	681	738	811	896	1,000	-	-	40	268	404	489	573	643	712	791	885	1,000	-	
357	525	583	639	697	755	830	916	-	-	-	41	295	421	506	590	661	732	812	908	-	-	
395	539	598	654	713	773	849	937	-	-	-	42	322	438	523	607	679	751	833	931	-	-	
434	553	612	669	729	790	867	958	-	-	-	43	350	455	540	624	696	770	853	954	-	-	
472	567	626	684	745	808	886	979	-	-	-	44	377	472	557	641	714	789	874	977	-	-	
511	581	641	699	761	825	905	1,000	-	-	-	45	404	489	574	658	732	808	895	1,000	-	-	
525	595	655	714	777	843	924	-	-	-	-	46	421	506	591	675	750	827	916	-	-	-	
539	609	669	729	793	860	943	-	-	-	-	47	438	523	608	692	768	847	937	-	-	-	
553	623	684	745	809	878	962	-	-	-	-	48	455	540	625	710	786	866	958	-	-	-	
567	637	698	760	825	895	981	-	-	-	-	49	472	557	642	727	804	885	979	-	-	-	
581	651	713	775	841	913	1,000	-	-	-	-	50	489	574	659	744	821	904	1,000	-	-	-	
595	665	727	790	857	930	-	-	-	-	-	51	506	591	676	761	839	923	-	-	-	-	
609	679	741	805	872	948	-	-	-	-	-	52	523	608	693	778	857	942	-	-	-	-	
623	693	756	820	888	965	-	-	-	-	-	53	540	625	711	795	875	962	-	-	-	-	
637	707	770	835	904	983	-	-	-	-	-	54	557	642	728	812	893	981	-	-	-	-	
651	721	784	850	920	1,000	-	-	-	-	-	55	574	659	745	829	911	1,000	-	-	-	-	
665	735	799	865	936	-	-	-	-	-	-	56	591	676	762	846	929	-	-	-	-	-	
679	749	813	880	952	-	-	-	-	-	-	57	608	693	779	863	946	-	-	-	-	-	
693	762	828	895	968	-	-	-	-	-	-	58	625	711	796	880	964	-	-	-	-	-	
707	776	842	910	984	-	-	-	-	-	-	59	642	728	813	897	982	-	-	-	-	-	
721	790	856	925	1,000	-	-	-	-	-	-	60	659	745	830	915	1,000	-	-	-	-	-	
735	804	871	940	-	-	-	-	-	-	-	61	676	762	847	932	-	-	-	-	-	-	
749	818	885	955	-	-	-	-	-	-	-	62	693	779	864	949	-	-	-	-	-	-	
762	832	899	970	-	-	-	-	-	-	-	63	711	796	881	966	-	-	-	-	-	-	
776	846	914	985	-	-	-	-	-	-	-	64	728	813	898	983	-	-	-	-	-	-	
790	860	928	1,000	-	-	-	-	-	-	-	65	745	830	915	1,000	-	-	-	-	-	-	
804	874	943	-	-	-	-	-	-	-	-	66	762	847	932	-	-	-	-	-	-	-	
818	888	957	-	-	-	-	-	-	-	-	67	779	864	949	-	-	-	-	-	-	-	
832	902	971	-	-	-	-	-	-	-	-	68	796	881	966	-	-	-	-	-	-	-	
846	916	986	-	-	-	-	-	-	-	-	69	813	898	983	-	-	-	-	-	-	-	
860	930	1,000	-	-	-	-	-	-	-	-	70	830	915	1,000	-	-	-	-	-	-	-	
874	944	-	-	-	-	-	-	-	-	-	71	847	932	-	-	-	-	-	-	-	-	
888	958	-	-	-	-	-	-	-	-	-	72	864	949	-	-	-	-	-	-	-	-	
902	972	-	-	-	-	-	-	-	-	-	73	881	966	-	-	-	-	-	-	-	-	
916	986	-	-	-	-	-	-	-	-	-	74	898	983	-	-	-	-	-	-	-	-	
930	1,000	-	-	-	-	-	-	-	-	-	75	915	1,000	-	-	-	-	-	-	-	-	
944	-	-	-	-	-</																	

Table 4: Tenant’s Package Policy

Tenant’s Package Policy (\$500 deductible)		
All Areas – Manitoba		
Coverage Amount	Standard Form	Comprehensive Form
\$25,000	158.00	200.00
\$30,000	174.00	226.00
\$35,000	199.00	252.00
\$40,000	212.00	269.00
\$45,000	235.00	298.00
\$50,000	254.00	324.00
\$55,000	272.00	346.00
\$60,000	293.00	373.00
\$65,000	315.00	400.00
\$70,000	337.00	427.00
\$75,000	359.00	454.00
Each additional \$1,000	\$4.50	\$5.50

\$200 deductible – Increase premium by 10%

Table 5: Manitoba Homeowner's Insurance Rates

Boeckh Calculator Amount	Manitoba Homeowner's Insurance Rates (\$500 deductible)											
	Metro Winnipeg			Area 2			Area 3			Area 4		
	Standard	Comprehensive	Standard	Comprehensive	Standard	Comprehensive	Standard	Comprehensive	Standard	Comprehensive	Standard	Comprehensive
\$ 50,000	195	214	147	161	196	216	261	287	261	287	261	287
\$ 55,000	216	238	160	176	217	239	289	318	289	318	289	318
\$ 60,000	237	260	173	190	237	261	315	347	315	347	315	347
\$ 65,000	252	277	187	205	255	281	339	373	339	373	339	373
\$ 70,000	266	303	200	220	270	297	359	395	359	395	359	395
\$ 75,000	294	314	210	231	285	314	379	417	379	417	379	417
\$ 80,000	310	323	221	243	302	332	402	462	402	462	402	462
\$ 85,000	318	333	226	249	313	344	416	458	416	458	416	458
\$ 90,000	324	349	231	254	324	356	431	474	431	474	431	474
\$ 95,000	348	370	244	268	345	380	459	505	459	505	459	505
\$ 100,000	364	393	260	286	361	397	480	528	480	528	480	528
\$ 105,000	390	417	278	306	378	416	503	553	503	553	503	553
\$ 110,000	402	441	293	322	393	432	523	575	523	575	523	575
\$ 115,000	418	464	299	329	409	450	544	598	544	598	544	598
\$ 120,000	436	487	309	340	424	466	564	620	564	620	564	620
\$ 125,000	451	510	319	351	444	488	591	650	591	650	591	650
\$ 130,000	472	543	339	373	466	513	620	682	620	682	620	682
\$ 135,000	498	557	345	380	477	525	634	697	634	697	634	697
\$ 140,000	523	580	358	394	496	546	660	726	660	726	660	726
\$ 145,000	538	596	375	413	508	559	676	744	676	744	676	744
\$ 150,000	550	604	385	424	520	572	692	761	692	761	692	761
\$ 155,000	557	613	398	438	551	606	733	806	733	806	733	806
\$ 160,000	565	622	413	454	569	626	757	833	757	833	757	833
\$ 165,000	572	629	425	468	589	648	783	861	783	861	783	861
\$ 170,000	590	647	441	485	609	670	810	891	810	891	810	891
\$ 175,000	607	668	451	496	624	686	830	913	830	913	830	913
\$ 180,000	620	686	466	513	648	713	862	948	862	948	862	948
\$ 185,000	636	702	478	526	667	734	887	976	887	976	887	976
\$ 190,000	652	717	492	541	705	776	938	1032	938	1032	938	1032
\$ 195,000	678	742	504	554	720	792	958	1054	958	1054	958	1054
\$ 200,000	692	771	519	571	726	799	966	1063	966	1063	966	1063
Additional Amounts												
per \$1000 coverage	Add: \$3.15	Add: \$3.50	Add: \$2.75	Add: 3.03	Add: \$3.55	Add: \$3.91	Add: \$4.72	Add: \$5.19	Add: \$4.72	Add: \$3.91	Add: \$4.72	Add: \$5.19

\$200 deductible – Increase premium by 10%

Table 6: Amortization Period of Mortgage Loan

Amortization Period of Mortgage Loan					
(Blended payment of principal and interest per \$1,000 of loan)					
Interest Rate	5 years	10 years	15 years	20 years	25 years
4.00%	\$18.40	\$10.11	\$7.38	\$6.04	\$5.26
4.25%	18.51	10.23	7.50	6.17	5.40
4.50%	18.62	10.34	7.63	6.30	5.53
4.75%	18.74	10.46	7.75	6.44	5.67
5.00%	18.85	10.58	7.88	6.57	5.82
5.25%	18.96	10.70	8.01	6.71	5.96
5.50%	19.07	10.82	8.14	6.84	6.10
5.75%	19.19	10.94	8.27	6.98	6.25
6.00%	19.30	11.07	8.40	7.12	6.40
6.25%	19.41	11.19	8.53	7.26	6.55
6.50%	19.53	11.31	8.66	7.41	6.70
6.75%	19.64	11.43	8.80	7.55	6.85
7.00%	19.75	11.56	8.93	7.70	7.00
7.25%	19.87	11.68	9.07	7.84	7.16
7.50%	19.98	11.81	9.21	7.99	7.32
7.75%	20.10	11.94	9.34	8.13	7.47
8.00%	20.21	12.06	9.48	8.28	7.63
8.25%	20.33	12.19	9.62	8.43	7.79
8.50%	20.45	12.32	9.76	8.59	7.95
8.75%	20.56	12.45	9.90	8.74	8.12
9.00%	20.68	12.58	10.05	8.89	8.28
9.25%	20.80	12.71	10.19	9.05	8.44
9.50%	20.91	12.84	10.33	9.20	8.61
9.75%	21.03	12.97	10.48	9.36	8.78
10.00%	21.15	13.10	10.62	9.52	8.94
10.25%	21.27	13.24	10.77	9.68	9.11
10.50%	21.38	13.37	10.92	9.84	9.28
10.75%	21.50	13.50	11.06	9.99	9.45
11.00%	21.62	13.64	11.21	10.16	9.63
11.25%	21.74	13.77	11.36	10.32	9.80
11.50%	21.86	13.91	11.51	10.48	9.97
11.75%	21.98	14.04	11.66	10.65	10.14
12.00%	22.10	14.18	11.82	10.81	10.32
12.25%	22.22	14.32	11.97	10.98	10.49
12.50%	22.34	14.46	12.12	11.14	10.67
12.75%	22.46	14.59	12.28	11.31	10.85
13.00%	22.58	14.73	12.43	11.48	11.02
13.25%	22.70	14.87	12.59	11.64	11.20
13.50%	22.82	15.01	12.74	11.81	11.38
13.75%	22.94	15.15	12.90	11.98	11.56
14.00%	23.07	15.29	13.06	12.15	11.74
14.25%	23.19	15.43	13.21	12.32	11.92
14.50%	23.31	15.58	13.37	12.49	12.10
14.75%	23.43	15.72	13.53	12.67	12.28
15.00%	23.56	15.86	13.69	12.84	12.46
15.25%	23.68	16.00	13.85	13.01	12.64
15.50%	23.80	16.15	14.01	13.18	12.83
15.75%	23.92	16.29	14.17	13.36	13.01
16.00%	24.05	16.44	14.33	13.53	13.19

*Interest compounded semi-annually. Actual payment amount may differ slightly.

SENIOR 4 CONSUMER MATHEMATICS • Personal Finance (Half Course V)

Homeowner's	Comprehensive Coverage		Broad Form Coverage	
	Building	Contents	Building	Contents
Collapse	✓	✓	✓	✓
Collapse caused by weight of ice, snow, sleet	✓	✓	✓	✓
Debris removal	✓	✓	✓	✓
Escape of fuel oil	✓	✓	✓	✓
Explosion	✓	✓	✓	✓
Falling objects striking exterior of building	✓	✓	✓	✓
Falling objects in interior of building	✓	✓	✓	✓
Fire	✓	✓	✓	✓
Fire department charges	✓	N/C	✓	N/C
Food freezer contents	N/C	✓	N/C	✓
Freezing of heating, plumbing, or air conditioning systems	✓	✓	✓	✓
Glass breakage — \$25.00 deductible	✓	✓	✓	✓
Hail damage	✓	✓	✓	✓
Impact of aircraft or land vehicle — including insured's own vehicle	✓	✓	✓	✓
Lawns, shrubs, trees, and plants	✓	N/C	✓	N/C
Lightning	✓	✓	✓	✓
Melting of snow and ice on roof	✓	✓	✓	N/C
Mortgage rate protection	✓	N/C	✓	N/C
Moving to a new home	N/C	✓	N/C	✓
Mysterious disappearance	N/C	✓	N/C	N/C
Riot	✓	✓	✓	✓
Rupture of heating, plumbing, or air conditioning systems	✓	✓	✓	✓
Sewer back-up — \$5000.00	✓	✓	N/C	N/C
Smoke damage — including smoke from a fireplace	✓	✓	✓	✓
Theft from the principal dwelling	N/C	✓	N/C	✓
Theft of contents away from principal dwelling	N/C	✓	N/C	✓
Theft from an unlocked car	N/C	✓	N/C	✓
Transportation — excluding water craft and outboard motors	✓	✓	✓	✓
Vandalism or malicious acts	✓	✓	✓	✓
Water escape — including waterbeds	✓	✓	✓	✓
Windstorm	✓	✓	✓	✓

N/C—Not covered

This chart is for information purposes only. For details, look at the wording in the insurance policy.

Mortgage Payments						
Payment #	Due Date	Payment	Interest	Principal	Unpaid Balance	Owner's Equity
1						
2						
3						
4						
5						
Interest _____						

Initial Costs in Purchasing a Home		
A	B	C
Appraisal Fee		
Inspection Cost		
Property Survey		
Insurance—High Ratio Mortgage		
Home Insurance		
Land Transfer Tax		
Prepaid Property Taxes and Utilities		
Legal Fees and Disbursements		
Sales Tax		
Moving Expenses		
Service Charge		
Immediate Repairs		
Appliances		
Decorating Costs		
Total Additional Costs		

This formula will help you determine the price of the home you can afford.

The Formula

Your Calculations

Gross Monthly Household Income

Multiply by 32% (GDSR)

Total affordable household expenses

Subtract

Monthly property taxes

Monthly heating costs

One half of condo/strata fees (if applicable)

Monthly mortgage payment your household can afford:

To calculate total mortgage amount, divide by estimated interest rate factor which corresponds to your interest rate (see table below).

Maximum amount of mortgage you can afford

Add your cash down payment

Your maximum affordable price

Actual mortgage payment

= interest rate factor x actual total mortgage

Gross debt service ratio

$$= \frac{\text{actual monthly mortgage payment} + \text{property taxes} + \text{heating}}{\text{gross monthly income}}$$

	x 0.32
	= _____

	= _____

	÷ _____
	= _____
	+ _____
	= _____

Interest Rate Factor Table*

Rate	Factor	Rate	Factor	Rate	Factor
6.0%	0.00640	8.0%	0.00763	10.0%	0.00894
6.5%	0.00670	8.5%	0.00795	10.5%	0.00928
7.0%	0.00700	9.0%	0.00828	11.0%	0.00963
7.5%	0.00732	9.5%	0.00861	11.5%	0.00997

* Based on 25-year amortization. **Note:** The figures used in this table do not necessarily reflect current market rates.