ST. JEAN DE BREBEUF MATHEMATICS

CHAPTER 8.4

LIVING EXPENSES

CHAPTER 8.4 LIVING EXPENSES

KEY CONCEPTS

You can expect to have different levels of *income* and *expenses* at different times in your life

A **budget** is an organized income and spending plan

→ A budget is **balanced** when the money coming in <u>equals</u> the money going out

→ To keep a budget **balanced**, an *increase* in some expenses must be countered by a *decrease* in other expenses, an *increase* in income, or both

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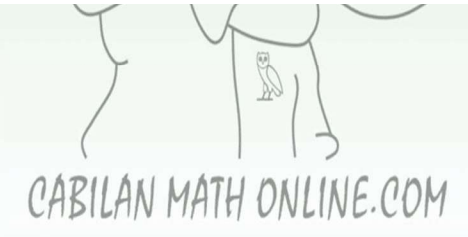
EXAMPLE 1 *Creating a Budget*

Tang is in Grade 12 and works part-time after school and on weekends.

His weekly earnings and expenses for the month of April are displayed in the chart below.

INCOME ($)		***EXPENSES ($)***	
Week 1	136.74	College savings	200
Week 2	188.20	Insurance	123
Week 3	209.38	Fuel	75
Week 4	173.66	Entertainment	100
TOTAL		***TOTAL***	
BALANCE (Income – Expenses) =			



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EXAMPLE 1 *Creating a Budget*

INCOME ($)		*EXPENSES ($)*	
Week 1	136.74	College savings	200
Week 2	188.20	Insurance	123
Week 3	209.38	Fuel	75
Week 4	173.66	Entertainment	100
TOTAL	**$707.98**	*TOTAL*	**$498**

BALANCE (Income – Expenses) = $707.98 – 498 = **$209.98**

(a) Complete the table to determine Tang's budget for the month of April

(b) Explain Tang's end-of-month balance

Tang has **$209.98** extra for the month of April

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EXAMPLE 2

Change in Costs in a Budget

Mikal and Jenny have three children and own a four-bedroom house. This year, their car insurance **increased by 5%**, grocery expenses **rose by 10%** and their home heating costs **rose by 15%**. Their monthly budget from last year is displayed. All amounts are rounded to the nearest dollar.

INCOME ($)					
Mikal	3200				
Jen	2900				
TOTAL	6100				
EXPENSES ($)					
FIXED EXPENSES	LAST YEAR	THIS YEAR	***VARIABLE EXPENSES***	LAST YEAR	THIS YEAR
Mortgage / Property Tax	2040		Groceries	800	
House insurance	32		Electricity	120	
Car Insurance	188		Heating	220	
Life Insurance	500		Water	65	
Long-Term Savings	580		Telephone	35	
RESPs	400		Internet	35	
			Cable TV	30	
			Medical	170	
			Clothing	150	
			Home repair	200	
			Charities	50	
			Entertainment	200	
			Vacation	200	
			Children's account	150	
			Gift account	100	
TOTAL FIXED	3640		*TOTAL VARIABLE*	2460	
TOTAL EXPENSES	LAST YEAR $6100		THIS YEAR		

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EXAMPLE 2

Change in Costs in a Budget

(a) Calculate the changes to their monthly budget items by filling out the **"This Year"** column

(b) Compare the **"This Year"** total expenses and Mikal and Jen's income. What do you notice?

INCOME ($)					
Mikal	3200				
Jen	2900				
TOTAL	6100				
EXPENSES ($)					
FIXED EXPENSES	LAST YEAR	THIS YEAR	***VARIABLE EXPENSES***	LAST YEAR	THIS YEAR
Mortgage / Property Tax	2040		Groceries	800	
House insurance	32		Electricity	120	
Car Insurance	188		Heating	220	
Life Insurance	500		Water	65	
Long-Term Savings	580		Telephone	35	
RESPs	400		Internet	35	
			Cable TV	30	
			Medical	170	
			Clothing	150	
			Home repair	200	
			Charities	50	
			Entertainment	200	
			Vacation	200	
			Children's account	150	
			Gift account	100	
TOTAL FIXED	**3640**		***TOTAL VARIABLE***	**2460**	
TOTAL EXPENSES	LAST YEAR **$6100**		THIS YEAR		

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EXAMPLE 2

Change in Costs in a Budget

(a) Calculate the changes to their monthly budget items by filling out the **"This Year"** column

(b) Compare the **"This Year"** total expenses and Mikal and Jen's income. What do you notice?

Fixed expenses = **$3749.40**

INCOME ($)		
Mikal	3200	
Jen	2900	
TOTAL	6100	
EXPENSES ($)		
FIXED EXPENSES	LAST YEAR	THIS YEAR
Mortgage / Property Tax	2040	2040
House insurance	32	32
Car Insurance	188	197.40
Life Insurance	500	500
Long-Term Savings	580	580
RESPs	400	400
TOTAL FIXED	3640	3749.40
TOTAL EXPENSES	LAST YEAR $6100	

Car insurance **increased by 5%**

= 5 / 100

= **0.05**

For new cost

= 188 × 1.05

= **$197.40**

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EXAMPLE 2

Change in Costs in a Budget

(a) Calculate the changes to their monthly budget items by filling out the **"This Year"** column

(b) Compare the **"This Year"** total expenses and Mikal and Jen's income. What do you notice?

Fixed expenses = **$3749.40**

Variable expenses = **$2638**

Total = **$6387.40**

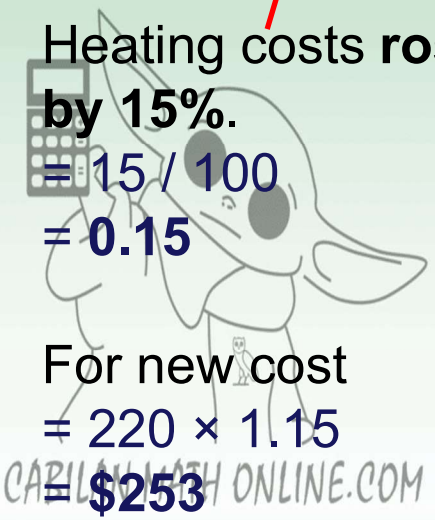
VARIABLE EXPENSES	LAST YEAR	THIS YEAR
Groceries	800	880
Electricity	120	120
Heating	220	253
Water	65	65
Telephone	35	35
Internet	35	35
Cable TV	30	30
Medical	170	170
Clothing	150	150
Home repair	200	200
Charities	50	50
Entertainment	200	200
Vacation	200	200
Children's account	150	150
Gift account	100	100
TOTAL VARIABLE	**2460**	2638
THIS YEAR		

Grocery expenses **rose by 10%**
= 10 / 100
= **0.1**

For new cost
= 800 × 1.1
= **$880**

Heating costs **rose by 15%.**
= 15 / 100
= **0.15**

For new cost
= 220 × 1.15
= **$253**



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EXAMPLE 2

Change in Costs in a Budget

(a) Calculate the changes to their monthly budget items by filling out the **"This Year"** column

(b) Compare the **"This Year"** total expenses and Mikal and Jen's income. What do you notice?

Fixed expenses = **$3749.40**

Variable expenses = **$2638**

Total = **$6387.40**

Total monthly income is **$6100**

→ The expenses are more than the income!!!

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EXAMPLE 2

Change in Costs in a Budget

(c) Which **variable expenses** are considered to be *non-essential*?

(d) Re-balance their budget by modifying the amounts of the *non-essential* variable expenses (try cutting them in half!)

Fixed expenses = **$3749.40**

New variable expenses = **$2100**

Total = **$5849.40**

VARIABLE EXPENSES	LAST YEAR	THIS YEAR
Groceries	800	800
Electricity	120	120
Heating	220	220
Water	65	65
Telephone	35	35
Internet	35	35
Cable TV	30	30
Medical	170	170
Clothing	150	75
Home repair	200	200
Charities	50	25
Entertainment	200	100
Vacation	200	100
Children's account	150	75
Gift account	100	50
TOTAL VARIABLE	**2460**	2100
THIS YEAR		

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HOMEWORK /SEATWORK

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