BLM Answers

BLM FM–2 Financial Mathematics Warm-Up

FM.1 Warm-Up

1. 2.6
2. $18.77
3. <
4. 2
5. Estimate: 60 or 80, Calculation: 72
6. –0.73, $\frac{1}{6}$, 0.179, 18%, $\frac{1}{5}$
7. Example: Divide $1 by 3.
8. a) = 10 units; b) = 6 units

FM.2 Warm-Up

1. Estimate: 75¢, Calculation: 75¢
2. Estimate: $2.50, Calculation: $2.48
3. Original unit price: 40¢/100 g
New unit price: 28¢/100 g
4. approximately 30%
5. Prediction: 120 vitamin C tablets for $10.99, Calculation: 120 vitamin C tablets for $10.99

FM.3 Warm-Up

1. a) $\frac{3}{4}$ h **b)** $\frac{1}{2}$ h
2. a) 0.75 h **b)** 0.5 h
3. a) 4 times **b)** 5 times
4. a) 7 h 15 min **b)** 7.. h **c)** 7.25 h
5. b), because 5% of $2000 is $100. Add $200 to that.

FM.4 Warm-Up

1. $17.78/h
2. 1130
3. $511.01
4. $958
5. Saturday = 9 h 45 min
Sunday = 7 h 45 min
Total break time = 1 h
Total = 9 h + 7 h – 1 h + 45 min
       + 45 min
     = 15 h + 1 h + 30 min
     = 16.5 h
His buddy is correct.
6. $495

FM.5 Warm-Up

1. 1600
2. 650
3. 40
4. 700
5. income tax = (0.15 × 43 561)
+ [0.22 × (50 000 – 43 561)]
+ (0.879 × 29 590)
+ [0.1495 × (50 000 – 29 590)]

FM.6 Warm-Up

1. $218.90
2. a) $24 + $2.00 = $26 Example: I rounded the price up to $2 each and then rounded down for tax. 10% of $24 is $2.40.
b) $23.10
3. a) 7 **b)** usually 30 or 31
c) 14 **d)** usually 365
4. $22.50
5. $7.50
6. a) Move decimal point 2 places to right: $15.
b) $15 + $7.50 = $22.50
c) $27.50 + $13.75 = $41.25
d) Take 10% of the number and then add half of that.
7. a) $100 **b)** About $25

BLM FM–4 FM.1 Extra Practise

1. a) Estimate: $0.75; Calculation: $0.75
b) Estimate: $3.00; Calculation: $2.99
c) Estimate: $0.50; Calculation: $0.44
d) Estimate: $0.80; Calculation: $0.80
2. a) $9.50 **b)** $38.00 **c)** $79.80
d) $0.95
3. a) Estimate: $2.50; Calculation: $2.75
b) Estimate: $2.50; Calculation: $2.50
c) Estimate: $1.38; Calculation: $1.18
d) Estimate: $0.75; Calculation: $0.98
4. Case of 24 ($0.50/juice pack) is more economical than 8-pack ($0.56/juice pack); to buy 100 juice packs, the best plan is to buy four cases and one 8-pack.
5. a) $17.50/kg **b)** $13.17/kg
c) $0.47/kg **d)** $4.45/kg

6. a) $0.20/kg; $0.12/kg
b) $0.44/battery; $0.50/battery
c) $2.39/L; $1.05/L
7. a) 40% decrease   **b)** 14% increase
c) 56% decrease
8. a) $9.43/L Example: The cost per mL is too low.
b) $0.34/mL Example: This is a reasonable figure.
c) $7.02/L Example: Since there are almost 4 litres, it makes sense to use litres.
9. a) 24 tablets   **b)** 350 mL   **c)** 12 snacks
d) 1.25 kg
10. a) $75/h
b) Example: Unit rate is a lower dollar amount for consumers to read

BLM FM–5 FM.2 Extra Practise

1. a) US$525   **b)** US$475
2. a) C$206   **b)** C$194
3. a) MXN$3075   **b)** MXN$2975
4. a) C$324.40   **b)** C$370
5. a) C$1055.10   **b)** US$164   **c)** C$163.66
6. a) US$298.55; €225.14; 8518 rubles
b) Example: Selling rate. The bank is selling me the money.
7. a) C$558.82; C$135.35;C$1222.80
b) Example: Buying rate. The bank is buying the money from me.
8. a) 600 Russian rubles or 15 euros
b) Yes. When the bank is buying the currency, the Russian rubles are worth the least. When the bank is selling the currency, the euros are worth the least.
9. a) 4056.25   **b)** $40.68, $33.28
c) No. Example: It's less expensive in the second one.
10. a) $473.74   **b)** Example: No. He would save a little money by buying it online, but it would be better to pay a little more and have a new one from a local store in case something went wrong.

BLM FM–7 FM.3 Extra Practice
1. $590
2. $11.43
3. a) $507.69 **b)** $1015.38 **c)** $1100
4. a) Yes   **b)** $433.06
5. $500
6. $2632.50

BLM FM–10 FM.4 Extra Practise
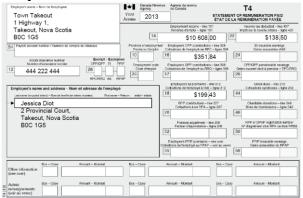
1. $200.76
2. a) $826.52
b) Gross annual income: $10 608
Income tax: $138.50
CPP: $351.84
EI: $199.43
c)

3. a) 282.10
b) Gross annual income: $28 256.80
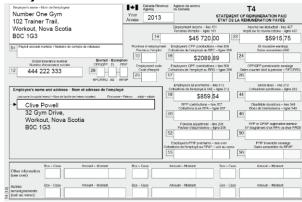Income tax: $3836.08
CPP: $1225.46
EI: $531.23
4. a) $49 967.50 **b)** $716.09
5. a) $45 720
b) Income tax: $5915.75
CPP: $2089.89
EI: $859.54
c)

6. Example: Ted starts out well by calculating the gross income tax payable. He makes one error there. On the second calculation of provincial income tax, he should multiply by 0.1495 rather than 0.15. Also, he doesn't go far enough in calculating the income tax due. Before he can determine that, he needs to find the

CPP and EI payable on $48 000. Then, he needs to determine what actual amount of federal and provincial income tax Ted would pay on his taxable income. This would mean using Ted's federal and provincial personal exemptions, as well as the amount of CPP and EI he paid. Ted should then subtract the amount of tax on his exemptions from the calculation done using his gross pay.

BLM FM−11 FM.5 Extra Practice

1. $469
2. $105
3. a) Example: Job 1 pays $810 per week. I would suggest that Michele accept this job.
   b) Michele will have to pay both federal and provincial income tax, CPP, and EI. She will likely have to pay federal income tax at 15% and provincial income tax at two different rates. She will not reach the maximum payment for either CPP or EI.
4. a) $300   b) $600   c) Josiah does not pay any income tax, because he makes below the minimum, which is $5700 for a dependent teen. He does not pay any CPP because he is making below the minimum, which is a $3500 gross. He may have to pay $16.92 of EI.
5. a) $2212.50   b) Example: No.

	+	−
Job 1	• Could earn more if more tenants found • Bonus for 5 or more tenants	• Earnings could be low if cannot find new tenants or no apartments are available
Job 2	• Constant salary even if rentals are low	• No potential to earn more than $650/week

BLM FM−14 FM.6 Extra Practise

1. a) $21.49   b) $45.57
   c) $9.82   d) $63.21
2. a) $42.98   b) $91.14
   c) $19.64   d) $126.42
3. a) $1200   b) $1500
   c) Food: $640, Rent: $400, Cell phone: $48, Gas: $105
   d) $1193

e) Kara's expenses that week are greater than her net pay.
f) Example: Join a car pool, pack lunch every day, use cell phone for texting only
4. a) Food, Gas, Cell phone   b) $70
   c) Example: She could save for a special purpose.
   d) Example: Add a category: Savings for college: $70
5. $83.33
6. Examples: a) Their combined income is the same as their total expenses; the amount of income greater than expenses was put aside for a "rainy day."
   b) Rent, Groceries, Gas, Insurance, Phone/cable/Internet, Cell phone, Gym, Saving to buy a condo, Saving for a vacation, Gifts and charity
   c) $1990   d) $1360
   e)

March Budget	
Income ($)	
Kim	1850
Derick	1500
Total Income	**3350**
Fixed Expenses ($)	
Rent	800
Car insurance	200
Phone/cable/Internet	150
Gym	90
Saving to buy a condo	500
Saving for a vacation	200
Gifts and charity	100
Total Fixed Expenses	**2040**
Variable Expenses ($)	
Groceries	500
Gas	200
Cell phone	50
Entertainment	200
Restaurants	300
For a "rainy day"	60
Total Variable Expenses	**1310**
Income − Expenses	**0**

7. a) $100
b) They decreased entertainment, savings, and restaurants, and increased groceries.
c) Renovating a room and Education fund
d) $400   **e)** None
f) and **g)** Entertainment: $100, Saving for a condo: $100, Saving for a vacation: $100, Restaurants: $200, Saving for a "rainy day": $150   **h)** November

8. a) $1248.25
b) Rent, Bus pass, Loan
c)

Monthly Budget	
Income ($)	
Net pay	1000
Fixed Expenses ($)	
Rent	350.00
Bus pass	61.25
Loan	257.00
Total Fixed Expenses	**668.25**
Variable Expenses ($)	
Food	300
Health/personal care	160
Entertainment	120
Total Variable Expenses	**580**
Income − Expenses	**−248.25**

d) −$248.25
e) Example: reduce her entertainment budget and her health/personal care budget

f) Example:

Monthly Budget	
Income ($)	
Net pay	1000
Fixed Expenses ($)	
Rent	350.00
Bus pass	61.25
Loan	257.00
Total Fixed Expenses	**668.25**
Variable Expenses ($)	
Food	300.00
Health/personal care	11.75
Entertainment	20.00
Total Variable Expenses	**331.75**
Income − Expenses	**0**

9. a) Rent, Bus pass, Loan payment
b) Example:

Five-Pay Month Budget	
Income ($)	
Net pay	1250
Fixed Expenses ($)	
Rent	350.00
Bus pass	61.25
Loan	497.00
Total Fixed Expenses	**908.25**
Variable Expenses ($)	
Food	230.00
Health/personal care	91.75
Entertainment	20.00
Total Variable Expenses	**341.75**
Income − Expenses	**0**

Each five-pay month, she can put an additional $240 of the fifth paycheque toward paying off her loan. After 5 five-pay months, her loan will be paid off.
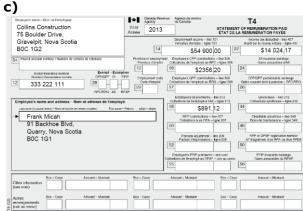
10. Example:

Monthly Budget	
Income ($)	
Net pay	1000
Fixed Expenses ($)	
Rent	350.00
Bus pass	61.25
Total Fixed Expenses	**411.25**
Variable Expenses ($)	
Food	300.00
Health/personal care	160.00
Entertainment	120.00
Savings	8.75
Total Variable Expenses	**588.75**
Income − Expenses	**0**

BLM FM−15 Financial Mathematics Test

1. B
2. A
3. B
4. B
5. C
6. A
7. C
8. a) BCD: $0.44/g, EFG: $0.399/g; *OR*
BCD: $4.40/kg; EFG: $3.99/kg; EFG is cheaper
b) 26%
c) Example: quality of the meat, distance to the store
9. a) US$1548   **b)** C$1562
10. $451.25
11. a) $760.45   **b)** $3041.80
12. $1244
13. a) $1152   **b) B** $47.92, **C** $21.66
c) D $270.94
d) $811.48
14. a) CPP: $2356.20; EI: $891.12
b) $14 024.17

c)

15. The commission job earns the most per year ($48 000). Example: Some salespeople might prefer salary over commission because they would continue to earn the same amount even if sales were low. On the other hand, others would rather get the additional money.

16. a) $1045.45   **b)** $635.00   **c)** $410.45
d) Example: Bob could sell his car and use the money to buy a bus pass. He could save the leftover money from the car sale and the additional $250 per month for car costs. Pro: extra savings; Con: inconvenience of taking public transportation.

Income	
Oct 15 pay	$455.36
Oct 30 pay	$590.09
Expenses	
Bus pass	$50.00
Saving for college	$200.00
Gym	$60.00
Spending money	$150.00
Clothes	$95.00
Cell phone	$80.00

17. Example: Yee should list all the costs associated with buying, insuring, and maintaining a car. Next, he should estimate what income he can expect from a job that requires the use of a car. Then, he should compare the two amounts to help him decide whether buying a car is the best option.