

Chapter 7 - Finance

7.1 - Simple and Compound Interest

Interest is a key component of our financial world and something that should be navigated with care. Interest rates are decided by banks and work either in your favour (like in a savings accounts, which are often less than 1%) or against you (like for credit cards, which often sit around 20%).

Simple Interest

Simple **interest** is based on three pieces of information: the **principal**, the **rate**, and the **time**.

Interest (I): The extra amount of money charged/made.

Principal (P): The original amount of money which is being worked on.

Rate (r): The percent charged for borrowing the principal.

Time (t): The amount of time the rate is working on the principal.

Simple Interest and Future Amount Formulas:

$$Interest = Principal \times Rate \times Time$$

$$I = Prt$$

Future Amount = What you have at the start + what you pay extra as interest

$$Amount = Principal + Interest$$

$$A = P + I \quad \text{or} \quad A = P(1 + r \cdot t)$$

Example 1) Find the future amount of a \$6000 simple interest investment for 4 years at 2%

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

$$2\% = .02$$

$$A = 6000(1 + .02 \times 4)$$

$$A = \$6480$$

Example 2) You have avoided paying your bookie for 20 months, and now they are demanding \$2500 (or they will break your kneecaps!) Find the original amount if the money borrowed is at 20% simple interest.

$$20 \text{ months} = 1\frac{2}{3} \text{ years}$$

↓

$$20 - 12 = 8$$

$$\& \frac{8}{12} = \frac{2}{3}$$

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

$$2500 = P(1 + .2 \times 1\frac{2}{3})$$

$$2500 = P(1\frac{1}{3})$$

$$\boxed{\$1875 = P}$$

∴ \$625 interest

Example 3) Kean borrowed \$6,800 at 4.25% simple interest. If he paid \$2400 in interest. Find out the terms of the loan (how much he has to pay each month, and for how long until it is paid back in full).

$$\textcircled{1} \$6800 = P$$

$$.0425 = r$$

$$2400 = I$$

$$? = t$$

$$\textcircled{3} A = P + I$$

$$A = 6800 + 2400$$

$$A = 9200$$

$$\textcircled{2} I = Prt$$

$$2400 = 6800 \times .0425 \times t$$

$$2400 = 289t$$

$$t = 8.3 \text{ years}$$

$$8.3 \text{ yr} \times 12 = \boxed{100 \text{ months}}$$

$$\textcircled{4} \frac{\$9200}{100 \text{ months}} =$$

$$\boxed{\$92 \text{ month for } 8.3 \text{ years}}$$

Discount Loans

Often, the interest of a loan is paid at the end or during the duration of a transaction. Sometimes however the interest is paid **upfront** (often to further guarantee the lender's investment), this is known as a discount loan (because the actual amount you receive is "discounted" by the calculated interest.)

For example, if you were to obtain a \$500 loan from a lender:

- With a regular loan, you would take the full \$500 and have to pay the lender back \$600 in a month's time.
- With a discount loan, you would only take home **\$400**, the lender would keep the remaining \$100 as the payment of interest. You would then be expected to pay back the full \$500 in a month's time.

Do not forget, that when you start asking lenders for money, you play by their terms. This can be VERY risky. Discount Loans are often offered by "Pay Day" loaners, which can sometimes have annual interest rates of over 500%!

Example 4) Jenny obtained a 4 year \$18000 loan for university. The rate of her discount loan was 6% simple interest.

- Find the discount.
- Find the amount of money Jenny actually received.
- Find the "actual" interest rate

$$a) \quad I = Prt \quad I = 18000 \times .06 \times 4 = \$4320$$

$$b) \quad 18000 - 4320 = 13680$$

$$c) \quad I = Prt \quad 4320 = 13680 \times r \times 4$$

$$4320 = 54720r$$

$$\frac{4320}{54720} = r = \boxed{7.8\%}$$

Compound Interest

Compound interest is like a running clock on your initial loan. Every month (or year) the amount of interest that was accrued is added to the total amount; interest for the following month is then calculated based on this new value, and this happens month after month until all the money is fully paid back.

Take a credit card initial loan (a purchase) of \$100 at 20% monthly compound interest, made on January 1st.

January 1st: Principal = \$100. Total owed if paid by January 31st: \$100

February 1st: Interest applied = 20% of \$100 = \$20. New Principal = \$100 + \$20 = \$120

March 1st: Interest applied = 20% of \$120 = \$24. New Principal = \$120 + \$24 = \$144.

Let's say you make a \$100 payment on your card on March 15th, leaving you with \$44 balance.

April 1st: Interest applied = 20% of \$44 = \$8.80. New principal = \$44 + \$8.80 = \$52.80.

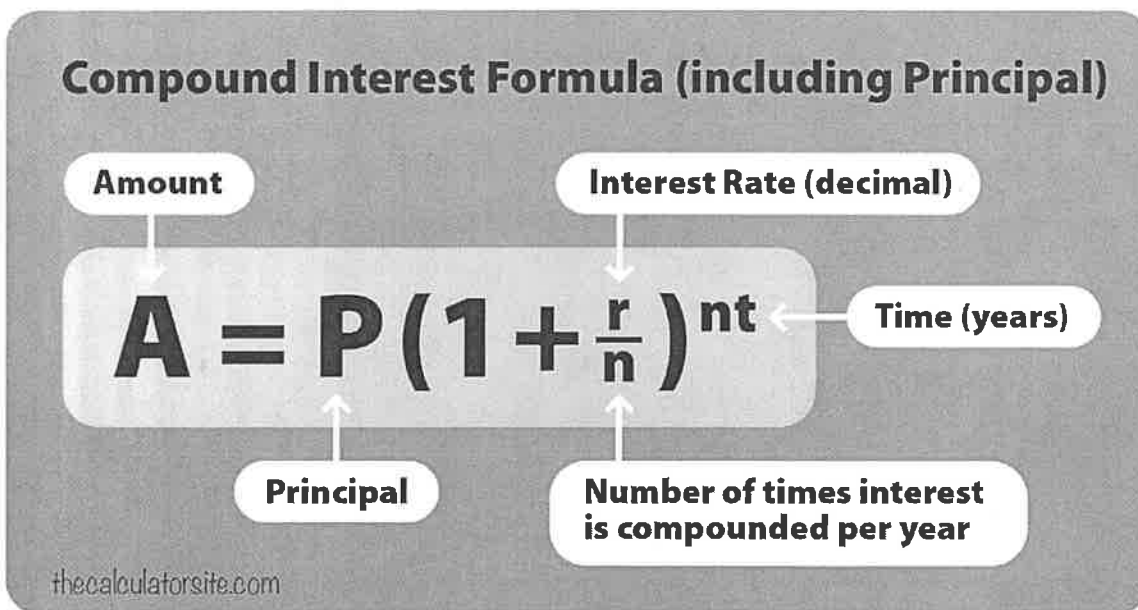
April 30th you pay off the rest of the 52.80.

Your initial \$100 loan cost you \$100 + \$20 + \$24 + \$8.80 = \$152.8, that is a 53% increase on your loan in just three months!

Here is the algebraic explanation of the above example that will derive our compound interest formula:

Time	Principal	+ Interest	=	Amount
1 year	P	$+ P \cdot r$	$= P(1 + r)$	$= P(1 + r)$
2 years	$P(1 + r)$	$+ P(1 + r)r$	$= P(1 + r)(1 + r)$	$= P(1 + r)^2$
3 years	$P(1 + r)^2$	$+ P(1 + r)^2 r$	$= P(1 + r)^2(1 + r)$	$= P(1 + r)^3$
4 years	$P(1 + r)^3$	$+ P(1 + r)^3 r$	$= P(1 + r)^3(1 + r)$	$= P(1 + r)^4$
\vdots	\vdots	\vdots	\vdots	\vdots
n years	$P(1 + r)^{n-1}$	$+ P(1 + r)^{n-1}r$	$= P(1 + r)^{n-1}(1 + r)$	$= P(1 + r)^n$

Compound Interest Formula:



Before moving on to some examples, let's review the different pay-periods and the number of times they occur per year. You will need to have these memorized.

Frequency	Times per year (n)
Daily	365
Weekly	52
Bi-Weekly	26
Semi-monthly	24
Monthly	12
Quarterly	4
Semi-annually	2
Annually	1

Example 5) Suppose Alex and Lee invest \$5000 for 4 years at 7%. Alex decides to invest using simple interest, and Lee finds a compound interest investment. Calculate their respective interest, given that interest, is calculated semi-annually.

Alex: $I = Prt$ $I = 5000 \times .07 \times 4 = \boxed{\$1400}$

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

$A = 5000(1 + \frac{.07}{2})^{2(4)} = \$6584.06 - 5000 \text{ (Principal)} = \boxed{\$1584.05}$

Example 6) How much would you have to invest into a 10-year bond paying 3.8%, compounded bi-weekly to make it worth \$10000 at the end of its term?

$10000 = P(1 + \frac{.038}{26})^{26(10)}$

$10000 = P(1.46)$

$P = \frac{10000}{1.46}$

$P = \boxed{\$6840.5}$

Gross pay is made up of:

Gross Pay (+)	Deductions (-)
Wage/Salary	Taxes (Federal & Provincial)
Overtime Pay	Employment Insurance (EI)
Commission	Canadian Pension Plan (CPP)
Bonuses	Registered Retirement Savings Plan (RRSP)
Reimbursements for travel	Medical Insurance (MSP)
Vacation Pay	Life Insurance
Tips	Union Dues
Any other forms of payment	Any other forms of deductions
Net Pay = Gross Pay - Deductions	

Example 1) Liam is a single person making \$45000 gross pay in BC. His federal tax is \$5410, provincial tax is \$3638, CPP is \$1844, EI is \$920, and MSP premiums are \$800, all per year. What is his bi-weekly net pay? And what percent of his take-home pay is going to his \$1450 a month apartment?

$$\begin{array}{r} \text{Gross} \\ \boxed{45000} \end{array} - \begin{array}{r} \text{Deductions} \\ \boxed{(5410 + 3638 + 1844 + 920 + 800)} \end{array} = \begin{array}{r} \text{Net} \\ \$32388 \end{array}$$

$$\frac{\$32388}{\text{year}} \left(\frac{\text{yr}}{26 \text{ bi-weekly}} \right) = \$1245.69 \leftarrow \text{bi-weekly paycheque}$$

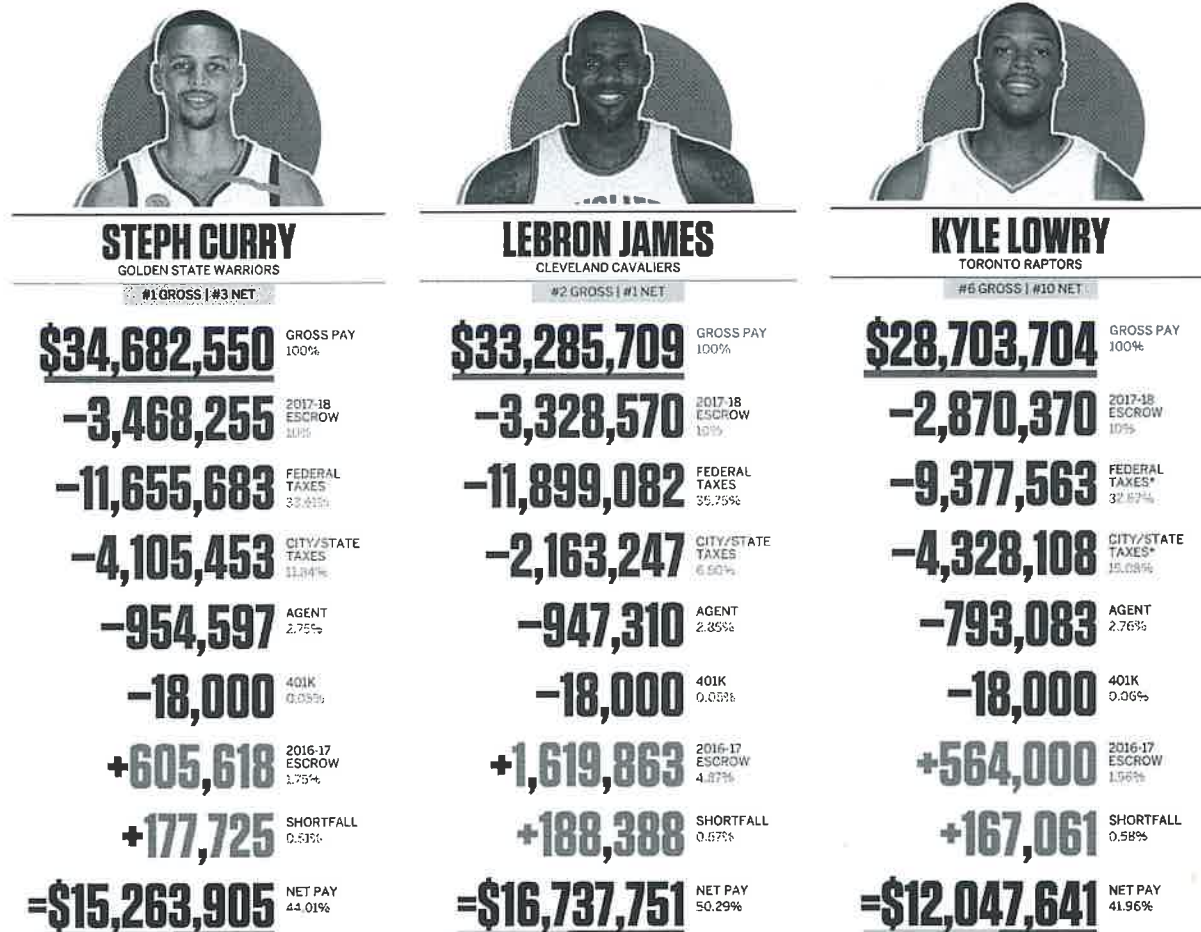
$$\frac{\$1245.69 \times 2}{\text{month}} = \$2491.38 \leftarrow \text{monthly}$$

$$\frac{\$1450}{\$2491.38} = \boxed{58\%}$$

7.2 - Gross and Net Pay

Gross Pay refers to the money you make **BEFORE** deductions and any added benefits. We often use this value to say how much somebody makes (but it is not that simple). Net Pay is the more important value: it is the final take-home earnings - how much you actually get to keep and do with as you'd like.

Let's take a look at the 2017 numbers for these NBA athletes. While it is reported in the media that they make ~\$30 million a year (gross pay) they actually take home about 45% of that after paying deductions and accruing benefits ~\$14 million (this is their net pay).



Example 2) Emilia makes \$9 per hour as a server and makes 10% of her sales in tips. On average she sells \$1500 worth of food and beverages during her 8-hour shift. She works 40 hours a week. Her federal and provincial taxes are a combined 20.6%. She has deductions for CPP, EI, and RESP totalling \$3960.84, minus a federal and provincial tax credit of \$1951.77. What is Emilia's monthly take-home pay?

$$\text{Ⓢ Gross: } \$9 \times 8 = \$72 + \left(.10 \times \overset{150}{11} \right) = \$222 \times 5 = \$1,110 \times 52 = \overset{\text{annual gross}}{\underline{\$57720}}$$

$$\text{Ⓢ Tax: } 57720 \times .206 = \underline{\$11890.32}$$

$$\text{Ⓢ Deductions: } \underline{\$3960.84}$$

$$\text{Ⓢ Credit: } \underline{\$1951.77}$$

$$57720 - 11890.32 - 3960.84 + 1951.77 = \underline{\$43820.61} \div 12 = \boxed{\$3,651.72}$$

↑
annual net
↑
monthly take home

7.3 - Tax Rates

In Canada, the tax rates are a levelled or progressive system (see the figure below), meaning that different quantities of income are taxed at different rates.

Federal Personal Income Tax Brackets and Rates

2017 Taxable Income	2017 Tax Rates
\$0 - \$45 916	15.0%
Over \$45 916 - \$91 831	20.5%
Over \$91 831 - \$142 353	26.0%
Over \$142 353 - \$202 800	29.0%
Over \$202 800	33.0%

BC Personal Income Tax Brackets and Rates

2017 Taxable Income	2017 Tax Rates
\$0 - \$38 898	5.06%
Over \$38 898 - \$77 797	7.70%
Over \$77 797 - \$89 320	10.50%
Over \$89 320 - \$108 460	12.29%
Over \$108 460	14.70%

Federal Basic Personal Amount

2017 Personal Amount
\$11 635

Federal Employment Credit

2017 Personal Amount
Max \$1178

BC Basic Personal Amount

2017 Personal Amount
\$10 207

2017 Canadian Pension Plan Rates

Maximum Pensionable Earnings	\$55 300.00
Less: Basic Exemption	\$3500.00
Maximum Earnings on which contributions are based	\$51 800.00
Rate	4.95%
Maximum Contribution	\$2564.10

2017 Employment Insurance Rates

Maximum Pensionable Earnings	\$51 300.00
Rate	1.63%
Maximum Contribution	\$836.19

To understand how this works, let's use an example of Casey who earns a taxable salary of \$199,330 a year (this is not his gross salary, we are pretending that we have already taken off any tax deduction values):

Federally, Casey's first \$45916 is taxed at 15% and thus owes
 $45916 \times .15 = \$6887.40$

Any of his earnings that are between \$45916 and \$91831 are taxed at 20.5%:
 $(91831 - 45916) \times .205 = \9412.58

Casey earned well over this \$91831 threshold so we must still move up the bracket levels until all his money has been taxed appropriately.

The next level consists of any earnings between \$91831 and \$142353 and is taxed at 26%:

$(142353 - 91831) \times .26 = \13135.72

The next bracket consists of any earnings between \$142353 and \$202800. We can see that the top-end of this bracket exceeds Casey's earnings so this is the final bracket we will need to calculate; only his earnings from \$142353 to \$199330 will be taxed at the bracket level of 29%:

$(199330 - 142353) \times .29 = \16523.33

Finally, to calculate the total amount of tax owed we just add up the values collected from each bracket

$\$6887.40 + \$9412.58 + \$13135.72 + \$16523.33 = \$45959.03$

We can use this figure to see what Casey's average tax rate was:

$45959.03 \div 199330 = .23 \Rightarrow 23\%$

Don't forget that this is only the federal income taxes, we also must do similar calculations for the provincial tax brackets to find out what Casey truly owes based on his taxable income.

Now, this may seem like a LOT of money that is taxed by the federal and provincial governments, but the collective money from everyone's income tax is put to use in a variety of ways. Notice that you never have (nor will) directly pay to attend school, see a doctor or go to a hospital, have 911 (police, fire, and ambulance) services provide immediate safety responses, attend parks, drive on safe roads and bridges, have a military, and positive trade relations with other nations; these are just some of the many ways our tax dollars are used.

If you feel unhappy with our tax system, do research on how other countries tax their citizens and then vote in future elections. Sweden, Japan, Denmark and Finland have the highest levels of income tax (around 55%) while the Cayman Islands, United Arab Emirate, and Kuwait have the lowest (around 0%). As an interesting side note, the highest taxed places in the world, according to the United Nations' World-Happiness Report, are also the happiest.

Tax Deductions and Tax Credits

Tax deductions and tax credits reduce the amount of money that you have to pay the federal and provincial governments, which as you can imagine is particularly important for low-income households. Personal Tax deductions (such as union dues, RRSP, RESP, etc.) are deducted off of your gross pay BEFORE you calculate your taxes. General Tax Credits (such as CPP, EI, PBA, FEC), a percentage at least, is reimbursed back to you AFTER you calculate your taxes. Let's learn about these a little bit before doing examples:

The "Basic Personal Amounts" (of which there is a distinct Federal [\$11635] and Provincial Amount [\$10207]) are the essential expected living costs that everyone accrues by eating, sleeping, and living in Canada & B.C. They are the biggest tax credits and are credited after your federal taxes and provincial taxes are calculated. Along with the Basic Personal Amounts, there is also the Federal Employment Credit which is designed to help you with work-related expenses that your employer may demand (uniforms, home computers, and other supplies needed for work). You can claim all of your gross earnings up to a maximum of \$1178 (which means that nearly everyone will claim the \$1178 maximum).

The Canadian Pension Plan (CPP) and Employment Insurance (EI) Rates are also tax-deductible (which means they reduce the amount of tax you end up

paying). For CPP you pay an annual maximum of \$2,564.10 (or 4.95% of your gross income [after deducting \$3,500] -- whichever is less), while for EI you pay a maximum of \$836.19 (or 1.63% of your gross salary -- whichever is less). So someone who makes \$60,000 or \$1,000,000 will pay the maximum contributions of \$2,564.10 (for CPP) and \$836.19 (for EI) but someone who makes \$40,000 only has to pay \$1,980 ($40000 - 3500 \times .0495 = \1806.75) for CPP and \$652 ($40000 \times .0163 = 652$) for EI.

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Federal Basic Personal Amount

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Federal Employment Credit

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BC Basic Personal Amount

2017 Personal Amount
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2017 Canadian Pension Plan Rates

Maximum Pensionable Earnings	\$55 300.00
Less: Basic Exemption	\$3500.00
Maximum Earnings on which contributions are based	\$51 800.00
Rate	4.95%
Maximum Contribution	\$2564.10

2017 Employment Insurance Rates

Maximum Pensionable Earnings	\$51 300.00
Rate	1.63%
Maximum Contribution	\$836.19

Example 1) Determine the federal and provincial tax for each income.

a) Total gross income of \$43000

Federal

0 → 45916: $43000 \times .15 = \boxed{\$6450} \ominus$

Fed Credit: $CPP = (43000 - 3500) \times .0495 = \underline{\$1955.25}$

$EI = 43000 \times .0163 = \underline{\$700.90}$

$FPBA = \underline{\$11635}$ $FEC = \underline{\$1178}$

$(1955.25 + 700.90 + 11635 + 1178) \times .15 = \boxed{\$2320.37} \oplus$

$6450 - 2320.37 = \boxed{\$4129.63} \ominus$ Federal Tax

Provincial

0 → 38898: $38898 \times .0506 = \underline{\$1968.24}$

38898 → 43000: $(43000 - 38898) \times .077 = \underline{\$315.85}$

Provincial Credit: $CPP + EI + PBA = \boxed{\$2284.09} \ominus$

$(1955.25 + 700.90 + 10207) \times .0506 = \boxed{\$650.88} \oplus$

$2284.09 - 650.88 = \boxed{\$1633.21}$ Provincial Tax

Total = FT + PT

$4129.63 + 1633.21 = \boxed{\$5762.84}$ Total

b) Total gross income of \$150000

Federal

$CPP = \text{max @ } 2564.10$

$EI = \text{max @ } 836.19$

0 → 45916: $(45916 - 0) \times .15 = \underline{\$6887.4}$

45916 → 91831: $(91831 - 45916) \times .205 = \underline{\$9412.58}$

91831 → 142353: $(142353 - 91831) \times .26 = \underline{\$13135.72}$

142353 → 150000: $(150000 - 142353) \times .29 = \underline{\$2217.63}$

Credit:

$(11635 + 1178 + 2564.10 + 836.19) \times .15 = \underline{\$2431.99} \oplus$

$\$31653.33 \ominus$

$- 2431.99 = \boxed{\$29221.01}$

Provincial

0 → 38898: $(38898 - 0) \times .0506 = \underline{\$1968.24}$

38898 → 77797: $(77797 - 38898) \times .077 = \underline{\$2995.22}$

77797 → 89320: $(89320 - 77797) \times .1050 = \underline{\$1209.92}$

89320 → 108460: $(108460 - 89320) \times .1229 = \underline{\$2352.31}$

108460 → 150000: $(150000 - 108460) \times .1470 = \underline{\$6106.38}$

Credit:

$(10207 + 2564.10 + 836.19) \times .0506 = \underline{\$688.53} \oplus$

$\$14632.07 \ominus$

$- 688.53 = \boxed{\$13943.54}$

Total: $29221.01 + 13943.54 = \boxed{\$43164.55}$

7.4 - Net Income

Your Net Income is your Gross Pay minus Deductions and Taxes. We have seen a couple of examples of tax deductions (CPP and EI) but there are several more. These are personal tax deductions that are calculated before doing taxes. Take these off of your gross pay to form your Taxable Income.

- ★ Registered Pension Plan (RPP)
- ★ Registered Retirement Savings Plan (RRSP)
- ★ Annual union, professional dues
- ★ Child care expenses
- ★ Moving expenses, car expenses, office expenses
- ★ Tuition, education, textbooks, and interest paid on student loans
- ★ Charitable donations

These deductions, as well as many more, can be used to lower your taxable income, which means paying less federal & provincial tax.

In this section, we put everything together. You will most commonly be given a gross pay value as well as any tax-deductible amounts (such as the ones listed above). Using the tax bracket sheet provided in 7.3 (which has also been copied onto the last page of the booklet for your convenience) you must determine how much tax is owed, and then the net (take-home) earnings for the question.

ORDER OF OPERATIONS

- 1) Calculate the GROSS PAY
- 2) Take off any personal deductions to find TAXABLE INCOME

FEDERAL INCOME TAXES

- 3) Use FEDERAL TAX BRACKETS to calculate the pre-deduction tax owed
- 4) Calculate FEDERAL TAX CREDITS: $(FPBA + FEC + CPP + EI) \times .15 =$
- 5) Calculate post-deduction TOTAL FEDERAL TAX: $(3) - (4)$.

PROVINCIAL INCOME TAXES

- 6) Use PROVINCIAL TAX BRACKETS to calculate the pre-deduction tax owed
- 7) Calculate PROVINCIAL TAX CREDITS $(PPBA + CPP + EI) \times .506 =$
- 8) Calculate post-deduction TOTAL PROVINCIAL TAX: $(6) - (7)$.

COMBINED

- 9) Calculate your COMBINED TOTAL TAXES: Federal (5) + Provincial (8)
- 10) Calculate your ANNUAL NET INCOME: Gross Pay $-$ ALL Deductions (Personal Deductions [RRSP & others] + General Deductions [CPP & EI] + Taxes [Federal & Provincial]) = Net Pay
- 11) Use ANNUAL NET INCOME to answer questions.

Example 1) Amie has a gross salary of \$66000. Her pre-tax deductions \$750 for union dues, \$3000 for an RRSP, and \$500 for moving expenses. What is her monthly net income?

$$\text{Gross} = \$66000 - (750 + 3000 + 500) = \$61750 \leftarrow \text{taxable income}$$

$$\text{CPP} = \text{max} @ \$2564.10$$

$$\text{EI} = \text{max} @ \$836.19$$

Federal

$$0 \rightarrow 45916: (45916 - 0) \times 0.15 = \underline{\$6887.40}$$

$$45916 \rightarrow 61750: (61750 - 45916) \times 0.205 = \underline{\$3245.97}$$

$$\text{Credit}: (11635 + 1178 + 2564.10 + 836.19) \times 0.15 = \underline{\underline{\$2431.99}}$$

$$\left. \begin{array}{l} \$6887.40 \\ \$3245.97 \end{array} \right\} \underline{\underline{\$10133.37}} = \boxed{\$7701.38}$$

↑
Fed Tax

Provincial

$$0 \rightarrow 38898: (38898 - 0) \times 0.0506 = \underline{\$1968.24}$$

$$38898 \rightarrow 61750: (61750 - 38898) \times 0.077 = \underline{\$1759.60}$$

$$\text{Credit}: (10207 + 2564.10 + 836.19) \times 0.0506 = \underline{\underline{\$688.53}}$$

$$\left. \begin{array}{l} \text{Prov Tax} \\ \$1968.24 \\ \$1759.60 \end{array} \right\} \underline{\underline{\$3727.84}} = \boxed{\$3039.31}$$

$$\text{Combined: } \$7701.38 + \$3039.31 = \boxed{\$10740.69} \leftarrow \text{total tax}$$

$$\begin{array}{cccccccc} \text{Gross} & \text{U.D.} & \text{RRSP} & \text{move} & \text{CPP} & \text{EI} & \text{Tax} & \\ 66000 & - & (750 + 3000 + 500) & + & 2564.10 & + & 836.19 & + & 10740.69 & = & \boxed{\$47609.02} \end{array}$$

÷ 12

$$\boxed{\$3967.42}$$

net per month

Find Annual Gross Income \oplus

Personal Deductions
(RESP, RRSP, union dues) \ominus

= Taxable Income \star

\ominus CPP $(G - 3500) \times .0495 \leq \max$

\ominus EI $(G \times .0163) \leq \max$

Federal

Fed Brackets
minus
Fed Credit
 $(FBPA + FEC + CPP + EI) \times .15$
Fed Tax \ominus

Provincial

Prov Brackets
minus
Prov Credit
 $(PBPA + CPP + EI) \times .0506$
Prov Tax \ominus

combined total tax

Annual Net = $G - \text{personal} - \text{CPP} - \text{EI} - \text{Prov Tax} - \text{Fed Tax}$

Example 2) Bryan makes an hourly wage of \$13.85/hour, working 40 hours a week, 50 weeks a year. If he saves 4% of his gross salary in a company registered pension plan (RPP) and puts 1% away for a Registered Education Savings Plan (RESP). How much does Bryan take home every bi-weekly paycheque?

Gross: $(13.85 \times 40 \times 50) = \boxed{\$27,700}$

Deductions: RPP: $27700 \times .04 = \underline{\$1108}$ RESP: $27700 \times .01 = \underline{\$277}$

CPP: $(27700 - 3500) \times .0495 = \underline{\$1197.9}$ EI: $27700 \times .0163 = \underline{\$451.51}$

Taxable Income = $27,700 - (1108 + 277) = \boxed{\$26,315}$

Federal

$0 \rightarrow 26,315 (26315 - 0) \times .15 = \boxed{3947.25} \ominus$

Credit: $(\underset{\text{RRSA}}{11635} + \underset{\text{FEC}}{1178} + \underset{\text{CPP}}{1197.9} + \underset{\text{EI}}{451.51}) \times .15 = \underline{\$2169.36}$

$\left. \begin{array}{l} \text{Tax} \\ \text{Credit} \end{array} \right\} 3947.25 - 2169.36 = \boxed{\$1777.89} \ominus$

Provincial

$0 \rightarrow 26315 (26315 - 0) \times .0506 = \boxed{\$1331.54} \ominus$

Credit: $(\underset{\text{RRSA}}{10207} + \underset{\text{CPP}}{1197.9} + \underset{\text{EI}}{451.51}) \times .0506 = \underline{\$599.93}$

$\left. \begin{array}{l} \text{Tax} \\ \text{Credit} \end{array} \right\} 1331.54 - 599.93 = \boxed{\$731.61}$

Combined

Total Tax: $\$1777.89 + 731.61 = \boxed{\$2509.50}$

Annual Net: $27700 - (\underset{\text{RPP}}{1108} + \underset{\text{RESP}}{277} + \underset{\text{CPP}}{1197.9} + \underset{\text{EI}}{451.51} + 2509.50) = \boxed{\$22,156.09}$

$\div 50$ weeks of work

$\$443.12$

$\times 2$ biweekly

$\boxed{\$886.24}$

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Over \$77 797 - \$89 320	10.50%
Over \$89 320 - \$108 460	12.29%
Over \$108 460	14.70%

Federal Basic Personal Amount

2017 Personal Amount
\$11 635

Federal Employment Credit

2017 Personal Amount
Max \$1178

BC Basic Personal Amount

2017 Personal Amount
\$10 207

2017 Canadian Pension Plan Rates

Maximum Pensionable Earnings	\$55 300.00
Less: Basic Exemption	\$3500.00
Maximum Earnings on which contributions are based	\$51 800.00
Rate	4.95%
Maximum Contribution	\$2564.10

2017 Employment Insurance Rates

Maximum Pensionable Earnings	\$51 300.00
Rate	1.63%
Maximum Contribution	\$836.19

ORDER OF OPERATIONS

- 1) Calculate the GROSS PAY
- 2) Take off any personal deductions to find TAXABLE INCOME

FEDERAL INCOME TAXES

- 3) Use FEDERAL TAX BRACKETS to calculate the pre-deduction tax owed
- 4) Calculate FEDERAL TAX CREDITS: $(FPBA + FEC + CPP + EI) \times .15 =$
- 5) Calculate post-deduction TOTAL FEDERAL TAX: (3) - (4).

PROVINCIAL INCOME TAXES

- 6) Use PROVINCIAL TAX BRACKETS to calculate the pre-deduction tax owed
- 7) Calculate PROVINCIAL TAX CREDITS $(PPBA + CPP + EI) \times .506 =$
- 8) Calculate post-deduction TOTAL PROVINCIAL TAX: (6) - (7).

COMBINED

- 9) Calculate your COMBINED TOTAL TAXES: Federal (5) + Provincial (8)
- 10) Calculate your ANNUAL NET INCOME: Gross Pay - ALL Deductions (Personal Deductions [RRSP & others] + General Deductions [CPP & EI] + Taxes [Federal & Provincial]) = Net Pay.
- 11) Use ANNUAL NET INCOME to answer questions.

Notes: