

Troy is a graduate of the College of the North Atlantic, from which he received his diploma in graphic design.

### MATH ON THE JOB

Brochures, packaging, and calendars are some of the items Troy Templeman designs. He is a self-employed graphic designer who operates his own studio, Troy Templeman Designs. Troy grew up in Logy Bay, Newfoundland, and graduated from Prince of Wales Collegiate in St. John's, NL. In 2000, he obtained his diploma in graphic design.

"As a graphic designer, I use math in my job on a daily basis," Troy says. For example, he uses geometry and geometric shapes in his designs. As well, says Troy, "I use a lot of addition, subtraction, multiplication, and division for pricing, invoices, and measurements."

Self-employed people like Troy often deduct and save a certain percentage of each job they are paid for. This money can go towards paying taxes or medical or dental expenses. Troy spends 17 hours working on a brochure and is paid \$850.00 for the job. He wants to deduct and save 30% of the amount he is paid. What is Troy's hourly wage after this deduction?

#### SOLUTION

Calculate Troy's hourly wage.

$$\$850.00 \div 17 = \$50.00/\text{h}$$

Calculate 30% of the hourly wage.

$$50 \times 0.30 = 15$$

Subtract from the hourly wage.

$$50 - 15 = \$35.00$$

Troy's earns \$35.00/h after the deduction.

$$\begin{aligned} \$850.00 \times 0.30 &= 255 \\ \$850.00 - 255 &= \$595 \\ 595 / 17 &= \$35/\text{hour} \end{aligned} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} 850 \times 0.70 \\ = 595 \end{array}$$



**Net Pay:** the money paid to an employee after deductions have been made  
"Take-home Pay"

### Net Pay (Take Home Pay)

- **Deductions** - these are subtracted from your **gross pay**.
  - (1) Employment Insurance (E. I.)
  - (2) Income Tax - money for the government.
    - percentage based on your earnings.
  - (3) Canadian Pension Plan (CPP) - paid for when you retire (age 60).

-> These are the 3 Standard Deductions.  
(rates vary yearly and province to province)
- **Other Deductions**
  - medical plans
  - dental plans
  - insurance (car/house/life)
  - pension (money after retirement)
  - union/association dues (percentage of pay)
  - car/house payments
- **Garnished Wages**
  - child support
  - alimony
  - unpaid taxes
  - unpaid fines
- **Investments**
  - Canada Savings Bond
  - TFSA (Tax Free Savings Accounts)
  - RRSP/RESP
  - Stock Market

# Federal & Provincial

"Canada Revenue Agency"

## Payroll tables

**CPP – Canada Pension Plan** – money collected by the Federal government from every worker over the age of 19 that will be used to provide an income for workers who reach retirement age (as early as 60 or any time there after).

### CPP contributions

There are no changes to the CPP contributions for the period of July 1, 2011 to December 31, 2011.

The maximum pensionable earnings for CPP are \$48,300 and the basic exemption for the year is \$3,500.

The contribution rate for employees is 4.95%. An employee's maximum contribution for the year is ~~\$2,217.60~~ \$2,593.80

*\$3,500 / wk etc.*

4.95% CPP

## EI – Employment Insurance

### EI premiums

There are no changes to the EI premiums for the period of July 1, 2011 to December 31, 2011.

The maximum insurable earnings for EI are \$44,200 and the premium rate is 1.78%. The maximum annual premium is ~~\$786.76~~ \$858.22

1.66%

~~1.78%~~ EI

**NOTE:** CPP is a contribution and EI is a premium.  
(under the tax section but is not taxed)

Employee Name: Hermione						
Company:		Pay Begin Date: 09/08/2011		Net Pay:		
		Pay End Date: 15/08/2011		Cheque Date: 16/08/2011		
General			Taxes Data			
Employee ID:		Job Title: Appliance Repair Apprentice		Description	Federal	
Address: 123 Main Street St. John, NB		Pay Rate: \$650.00/wk Annual: \$33 800.00		Claim Code	1	
Hours and Earnings			Before-Tax Deductions		Taxes	
Current			Description	Amt.	Description	Amt.
Description	Rate	Gross Earnings	Union Dues	\$14.10	Federal	\$53.10
			Pension	\$20.50	Provincial	\$42.00
Regular	\$650.00/wk	\$650.00	Total	\$34.60	CPP	\$28.43
					EI	\$11.25
					Total	\$134.78

**Benefits:** a range of programs that benefit employees; these vary from employer to employer

- Union Dues
- Pension
- Canada Savings Bonds
- Medical / Dental plans

These amounts are subtracted from the gross earnings before taxes are calculated.

**QUESTION...**

Based on the amounts deducted for union dues and pensions, what percentage of Hermione's gross pay does she pay in union dues and what percentage does she contribute to a pension?



**Calculating the deductions...**

- CPP - in 2011, the rate is 4.95 % of the annual salary less the \$3500 exemption.  
[once you earn over \$44 800 - the maximum contribution is \$2217.00]
- EI - in 2011, the rate is 1.56 % of the annual salary.  
[once you earn over \$41 200 - the maximum premium is \$786.76]

Employee Name: Amanda						
Company:		Pay Begin Date: 03/08/2011		Net Pay:		
		Pay End Date: 03/15/2011		Cheque Date:		
General			Taxes Data			
Employee ID:		Job Title:		Description	Federal	
Address: 123 Main St. Dartmouth, NS		Pay Rate: \$500.00/wk Annual: \$26 000.00		Claim Code	1	
Hours and Earnings			Before-Tax Deductions		Taxes	
Current			Description	Amt.	Description	
Description	Rate	Gross Earnings	Union Dues		Federal	
			Pension		Provincial	
Regular	\$500.00/wk	\$500.00	Total		CPP	
					EI	
					Total	

$26\ 000 - 3500 = 22\ 500$   
 $22\ 500 / 52 = 432.69$   
 $0.0495(432.69) = 21.42$   
 $0.0178(500) = 8.90$

**OR USE A TABLE**  
Canada Pension Plan Contributions  
Weekly (52 pay periods a year)

Pay Rémunération	CPP RPC	Rén
From - De	To - À	From - De
499.93 -	500.12	21.42
500.13 -	500.33	21.43
500.34 -	500.53	21.44
500.54 -	500.73	21.45
500.74 -	500.93	21.46
500.94 -	501.13	21.47
501.14 -	501.34	21.48
501.35 -	501.54	21.49
501.55 -	501.74	21.50



## WHAT CODE???

Employers have their employees fill out a Personal Tax Credit Return form to determine how much taxes should be taken off each cheque.



School... Disability... Spouse... Caregiver... Infirm dependent... etc. ???

Most employees prefer to be under Code #1 because they will get money back at the end of the year.

# C

## Canada Pension Plan (CPP) 4.95%



### Important notice

[Changes to the rules for deducting Canada Pension Plan \(CPP\) contributions.](#)

You have to deduct CPP contributions from an employee's remuneration if that employee:

- is 18 years or older, but **younger** than 70;
- is in pensionable employment during the year;
- is **not** considered to be disabled under the CPP or QPP; **and**
- does **not** receive a CPP or QPP retirement pension.

# P

### 2. What benefits does the Canada Pension Plan provide?

The Canada Pension Plan is a contributory, earnings-related social insurance program. It ensures a measure of protection to a contributor and his or her family against the loss of income due to retirement, disability and death.

There are three kinds of Canada Pension Plan benefits:

- **disability benefits** (which include benefits for disabled contributors and benefits for their dependent children);
- **retirement pension;** and
- **survivor benefits** (which include the death benefit, the survivor's pension and the children's benefit).

# P

The Canada Pension Plan operates throughout Canada, although the province of Quebec has its own similar program, the Quebec Pension Plan. The Canada Pension Plan and the Quebec Pension Plan work together to ensure that all contributors are protected.

4.95%

C

There is a "basic yearly exemption" from CPP payments.

$$\frac{3500}{26} = \$134.61 \quad \text{\$3500} \quad \frac{3500}{52} = \$67.31$$

P

1. You must calculate the basic pay-period exemption that applies.  
( \$3500 / # of pay periods)

2. Subtract the exemption from the gross pay.

P

$$3400 - 134.61 = \$3264.39$$

3. Multiply by 4.95%

$$3264.39 \times 0.0495 = \$161.59$$



EI

1.66%

~~1.78%~~

**What is the Employment Insurance (EI) system?**

Employment Insurance is a social program that contributes to the security of all Canadians by providing assistance to workers who lose their jobs and helping unemployed people across the country to get back to work.

**Employment Insurance (EI)**

You have to deduct EI premiums from your employees insurable earnings on **each dollar** up to the yearly maximum. As an employer, you must also contribute 1.4 times the EI premium withheld for each employee.

**Insurable employment** includes most employment in Canada under a contract of service (employer-employee relationship).

There is **no age limit** for deducting EI premiums.

1.66%



*People who are self-employed do not have to pay Employment Insurance premiums, but are also not eligible for EI if they find themselves out of work.*

# Taxable Income...

Benefits are deducted before federal/provincial tax is calculated  
 [Union dues, medical plans, pension]

## Gross Pay - Before Tax Deductions

**EXAMPLE: Calculate the net pay...**

Employee Name: <b>Iwana Job</b>		Pay Begin Date: 08/17/2011		Net Pay: \$413.88	
Company:		Pay End Date: 08/23/2011		Cheque Date: 08/23/2011	
<b>General</b>		<b>Taxes Data</b>			
Employee ID:	Job Title:	Description	Federal		
Address: <b>Miramichi, NB</b>	Pay Rate: \$500.00/wk	Claim Code	1		
	Annual: \$26 000.00				
<b>Hours and Earnings</b>		<b>Before-Tax Deductions</b>		<b>Taxes</b>	
	Current	Description	Amt.	Description	Current
Description	Rate	Gross Earnings	Union Dues \$1.38	Federal	
Regular	\$500.00/wk	\$500.00	Pension \$43.00	Provincial	
		Total		CPP	
				EI	
<b>Paycheque Summary</b>				Total	
Gross Earnings	Taxable Gross	Total Taxes, CPP, and EI	Total Deductions	Net Pay	
\$500.00					

- STEPS: Calculate...**
1. "Before tax Deductions"
  2. Taxable gross pay
  3. Federal Tax
  4. Provincial tax
  5. CPP
  6. EI
  7. .... NET PAY

**Here are the tables that you will need...**

**Federal tax deductions** **Retenues d'impôt fédéral**  
 Effective January 1, 2012 En vigueur le 1<sup>er</sup> janvier 2012  
 Weekly (52 pay periods a year) Hebdomadaire (52 périodes de paie par année)  
**Also look up the tax deductions in the provincial table** **Cherchez aussi les retenues d'impôt dans la table provinciale**

Pay Rémunération	Federal claim codes/Codes de demande fédéraux										
	0	1	2	3	4	5	6	7	8	9	10
From Less than De Moins de	Deduct from each pay Retenez sur chaque paie										
451 - 455	60.70	29.45	26.50	20.50	14.55	8.60	2.60				
455 - 459	61.25	30.05	27.05	21.10	15.10	9.15	3.20				
459 - 463	61.80	30.60	27.60	21.65	15.65	9.70	3.75				
463 - 467	62.35	31.15	28.15	22.20	16.25	10.25	4.30				
467 - 471	62.90	31.70	28.70	22.75	16.80	10.85	4.85				

**New Brunswick provincial tax deductions** **Retenues d'impôt provincial du Nouveau-Brunswick**  
 Effective January 1, 2012 En vigueur le 1<sup>er</sup> janvier 2012  
 Weekly (52 pay periods a year) Hebdomadaire (52 périodes de paie par année)  
**Also look up the tax deductions in the federal table** **Cherchez aussi les retenues d'impôt dans la table fédérale**

Pay Rémunération	Provincial claim codes/Codes de demande provinciaux										
	0	1	2	3	4	5	6	7	8	9	10
From Less than De Moins de	Deduct from each pay Retenez sur chaque paie										
435 - 439	37.35	21.25	19.50	15.90	12.35	6.75	5.20	1.60			
439 - 443	37.70	21.60	19.80	16.25	12.70	9.10	5.55	1.95			
443 - 447	38.05	21.95	20.15	16.60	13.00	9.45	5.85	2.30			
447 - 451	38.40	22.30	20.50	16.95	13.35	9.80	6.20	2.65			
451 - 455	38.75	22.65	20.85	17.25	13.70	10.15	6.55	3.00			
455 - 459	39.05	22.95	21.20	17.60	14.05	10.45	6.90	3.30			
459 - 463	39.40	23.30	21.50	17.95	14.40	10.80	7.25	3.65	.10		
463 - 467	39.75	23.65	21.85	18.30	14.70	11.15	7.55	4.00	.45		
467 - 471	40.10	24.00	22.20	18.65	15.05	11.50	7.90	4.35	.75		
471 - 475	40.45	24.30	22.55	18.95	15.40	11.80	8.25	4.70	1.10		

**CONTRIBUTING TO CPP, TAXES, AND EI**

Pros	Cons
<ul style="list-style-type: none"> <li>the taxes you pay go towards building infrastructure such as roads and schools</li> <li>contributions to CPP go towards your retirement</li> <li>dependants such as family members may benefit from your contributions</li> <li>financial assistance if you become unemployed</li> </ul>	<ul style="list-style-type: none"> <li>some of your tax money may go to support programs you don't agree with</li> <li>you can't invest your money where you want</li> <li>you receive less of your money on each paycheque</li> </ul>

**MORE PRACTICE???**

- Sean works as a building manager for a condominium management company in Halifax. His weekly salary is \$1000.00/week. What will his CPP deduction be?
 

*Handwritten:  $3500 \div 52 = 67.31$   
 $1000 - 67.31 = 932.69$   
 $932.69 \times 0.0495 = 46.17$*
- The following two people work for Reardon's Construction and Development in Newfoundland and Labrador. They earn \$14.50 an hour and are paid biweekly. Their CPP and EI contribution plus taxes average 30% of their gross pay. Find their net pay.
  - Shoshana works 37.5 hours a week in the office. She has biweekly deductions as follows: group insurance, \$2.74, dental plan, \$3.85, and union dues, \$6.95.
  - Ivan works 40 hours a week as a framer. He pays union dues of \$6.95.
- Louis earns \$550.00 a week as a shift foreman in a mine in New Brunswick. His claim code is 4 and he is paid semi-monthly. Which is higher, his federal tax deduction or his territorial tax deduction?

*Handwritten calculations:*

$$2 \times 37.5 \times 14.50 = 1087.50$$

$$1087.50 \times 0.30 = 326.25$$

$$\text{Other deductions} = -13.54$$

$$\text{Net Pay} = 747.71$$

**SOLUTIONS**

- First find the CPP basic exemption. The 2011 exemption per week is \$67.31, so subtract this amount from Sean's weekly gross pay.
 
$$1000.00 - 67.31 = 932.69$$
 Then multiply by the CPP contribution rate, 4.95%.
 
$$932.69 \times 0.0495 = 46.17$$
 Sean's CPP deduction will be \$46.17.
- Calculate the biweekly gross pay.
 
$$14.50 \times 37.5 \times 2 = \$1087.50$$
 Deduct the before-tax benefits.
 
$$1087.50 - 2.74 - 3.85 - 6.95 = \$1073.96$$
 Calculate the taxable deductions.
 
$$1073.96 \times 0.30 = \$322.19$$
 Subtract the taxable deductions from the taxable income to find the net pay.
 
$$1073.96 - 322.19 = \$751.77$$
 Shoshana's net pay is \$751.77.
  - Calculate the biweekly gross pay.
 
$$14.50 \times 40 \times 2 = \$1160.00$$
 Deduct the before-tax benefits.
 
$$1160.00 - 6.95 = \$1153.05$$
 Calculate the taxable deductions.
 
$$1153.05 \times 0.30 = \$345.92$$
 Subtract the taxable deductions from the taxable income to find the net pay.
 
$$1153.05 - 345.92 = \$807.13$$
 Ivan's net pay is \$807.13.
- Calculate the semi-monthly gross pay.
 
$$550.00 \times \frac{52}{24} = \$1191.67$$
 Look up the New Brunswick and federal tax tables. The answer here is based on the January 2011 tables.
 Federal tax is higher: \$64.10 compared to provincial tax of \$48.30.

**HOMEWORK...**

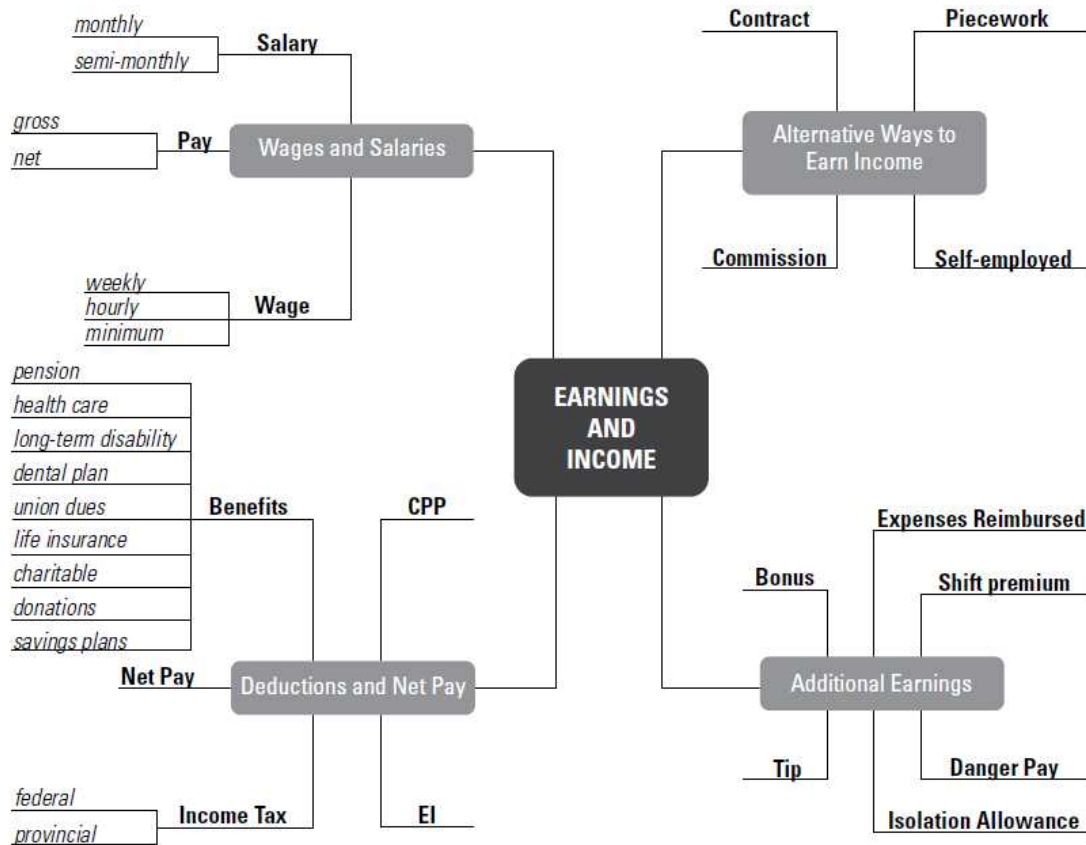
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## REVIEW TIME!!!



## REFLECT ON YOUR LEARNING

### EARNING AN INCOME

Now that you have finished this chapter, you should be able to

- calculate gross pay given a rate of pay and amount of time worked;
- calculate total time worked from a weekly work schedule;
- describe various methods of earning income and give examples of jobs that fall into different categories;
- calculate earnings that combine a base salary plus commissions, bonuses, or tips;
- calculate income based on piecework;
- describe the advantages and disadvantages of a given method of earning an income, such as contract work, piecework, salary, or commission;
- determine CPP, EI, and income tax deductions for a given gross pay and calculate the net pay.

# Ready for the test??? PRACTICE!!!

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