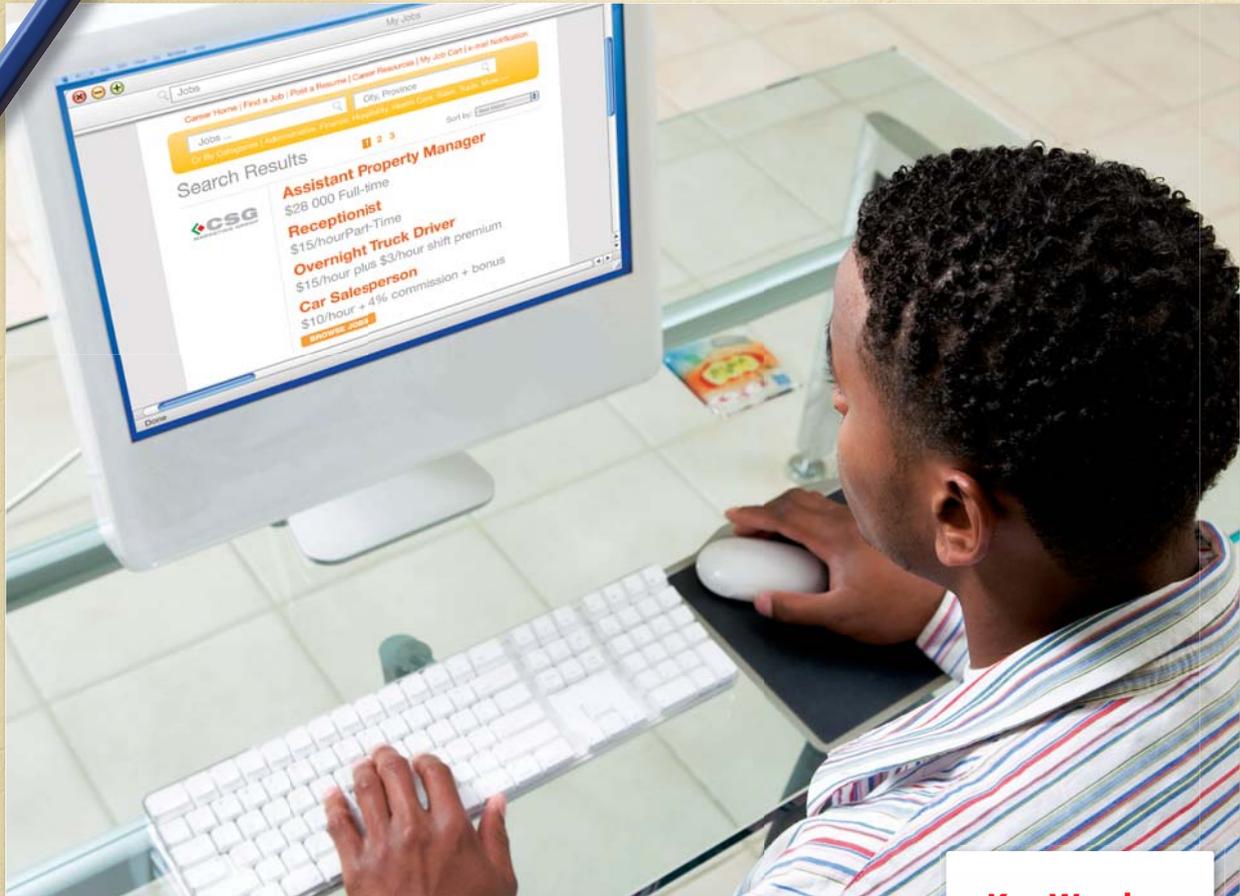


# NL Math 10: Chapter 4

February 24, 2011, 16:28

# 4

# Getting Paid for Your Work



Wayne is looking for a job. He notices that each job pays employees in a different way.

1. List the job opportunities shown.
2. What are the different ways employees are paid?
3. Which job would you like to know more about?
4. What questions might you ask?

## Key Words

salary  
hourly wage  
gross pay  
overtime  
shift premium  
deductions  
net pay  
commission  
bonus  
piecework  
contract

## Career Link

Michael is the head server at a fine-dining restaurant. He prepares the schedule for the dining room. He also works with money in many ways, including estimating bills, calculating tips, and giving change.



## Rounding

Sometimes, calculations result in answers with more than two decimal places. As a result, rounding of money values is sometimes needed.

1. Round each value to the nearest cent.

- a) \$484.672
- b) \$9558.475
- c) \$25.072
- d) \$346.708
- e) \$89.054
- f) \$1205.999

2.



Holley and Brody want to split the \$41.25 earned from their paper route. How much money will each of them receive?

## Decimal Operations

3. Estimate. Then, calculate. The first one has been done for you.

a)  $40 \times 14.87$

To estimate, use numbers that are convenient to multiply.

Round 14.87 to 15.

$15 = 10 + 5$ , so add  $40 \times 10$  and  $40 \times 5$ .

The estimate is  $400 + 200$ , or about 600.

$40 \times 14.87 = 594.8$

- b)  $205.00 + 96.50$
  - c)  $1000 \div 20.50$
  - d)  $550.50 - 67.25 - 13.14$
4. Calculate. What other methods could you use to find the answer?
- a)  $45 \times \$11.75$
  - b)  $1.5 \times \$13.75$
5. Calculate.
- a)  $250 \times 1$
  - b)  $250 \times 0.1$
  - c)  $250 \times 0.01$
  - d)  $250 \times 0.05$
6. What pattern do you notice in your answers for #5?

## Time

7. There are
- a)  hours in a day
  - b)  days in a week
  - c)  weeks in a year
  - d)  months in a year
  - e)  days in a year

8.

SUN	MON	TUES	WED	THURS	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

How many weeks are in this month?  
How can you express your answer?

9. Determine the total amount of time.  
Express your answer in hours and minutes. The first one has been done for you.

a) start: 8:30 a.m., end: 4:00 p.m.

*From 8:30 a.m. to 12:00 p.m.  
is 3 hours 30 minutes.*

*From 12:00 p.m. to 4:00 p.m.  
is 4 hours.*

*The total time is 7 hours 30 minutes.*

b) start: 10:00 a.m., end: 6:30 p.m.

c) start: 7:00 p.m., end: 7:00 a.m.

d) start: 4:30 a.m., end: 8:15 a.m.

10. • You begin work at 8:30 a.m.  
• You take an unpaid lunch break from 12:00 p.m. to 12:45 p.m.  
• You take two 15-minute paid breaks during the day.  
• You end work at 4:30 p.m.

For how many hours are you paid?

a) Express your answer in hours and minutes.

b) Express your answer for part a) as a fraction of an hour.

c) Express your answer for part b) as a decimal.

## Percent

11. Calculate.

a) 10% of 400

b) 20% of 400

c) 50% of 400

d) 5% of 400

12. Estimate. Then, calculate.

a) 3% of 19 999

### Tech Link

Follow the steps to calculate 3% of 19 000.

Press **C** 3 **%** **x** 19000 **=**

Your calculator may have slightly different key strokes. Experiment or check with a classmate.

b) 5% of 9.75

c) 20% of 154

d) 4% of 4000

e) 22.7% of 290.30

f) 1.73% of 875.25

13. Calculate.

a) 1% of 400

b) 40% of 950

c) 13% of 119.99

d) 6% of 4507.50

# 4.1

## Wages and Salary



### Focus On ...

- identifying jobs that earn an hourly wage and tips, or a salary
- determining the total time worked
- determining gross pay including time-and-a-half and double time
- investigating questions related to changes in pay
- identifying and correcting errors in gross pay

*An administrative assistant can earn a salary or an hourly wage.*

### Explore Wages and Salary

#### salary

- a fixed amount of money paid to a worker on a monthly or annual basis
- does not depend on the number of hours worked

Ally works as an administrative assistant. Her salary is \$1900 per month.

- Here is Ally's schedule for this week.

Monday	Tuesday	Wednesday	Thursday	Friday
8:00 a.m. – 12:00 p.m.	9:00 a.m. – 11:30 a.m.	Day off	8:30 a.m. – 12:00 p.m.	8:00 a.m. – 11:30 a.m.
12:30 p.m. – 5:00 p.m.	12:30 p.m. – 5:00 p.m.		12:30 p.m. – 7:00 p.m.	12:30 p.m. – 5:00 p.m.

- How long did Ally work each day? Express your answer in hours and minutes. Then, show it in fraction and in decimal form.
- How many hours did Ally work this week? Express your answer in decimal form.

**F.Y.I.**

“Semi-monthly” means twice per month. Pay day is often on the 15th and the last day of the month.

“Bi-weekly” means every second week.

**hourly wage**

- the amount of money paid to a worker per hour worked

- Ally calculates her total hours for this month. She notices that she worked seven more hours this month than last month. Does Ally’s pay change? Explain.
- People are paid according to different pay periods. How many pays would Ally receive in a year if she is paid
  - monthly?
  - semi-monthly?
  - weekly?
  - bi-weekly?

- How many pays would Ally receive this month if she is paid
  - semi-monthly?
  - weekly?
  - bi-weekly?

SUN	MON	TUES	WED	THURS	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

- How much would Ally make in each pay this month if she is paid bi-weekly on Fridays?
- Jason works at the front desk of a local fitness centre. His **hourly wage** is \$14.00 per hour.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
6:00 p.m. – 10:00 p.m.	4:30 p.m. – 10:30 p.m.	5:00 p.m. – 10:00 p.m.	5:00 p.m. – 10:00 p.m.	Day off	9:00 a.m. – 5:30 p.m.

How many hours did Jason work this week? Express your answer in fraction and in decimal form.

- Jason works the same schedule each week for the first six months of the year.
  - Jason is paid weekly each Friday. How many pays does he receive between January 1 and June 30 of this year?
  - Does he receive the same number of pays each month? Explain.
  - What will his pay be for a 4-pay month? a 5-pay month?
- Reflect** Ally is paid bi-weekly. Jason is paid weekly.
  - Who would earn more in a month with four Fridays?
  - Who would earn more in a month with five Fridays?
- Extend Your Understanding**
  - If Ally and Jason were both paid on a bi-weekly basis, how many pays would they receive per year?
  - In which months would they receive two pays? three pays?

## On the Job 1

### F.Y.I.

Battle Harbour is on “iceberg alley.” Each year, hundreds of massive ice chunks pass by the island.

### Calculate Gross Pay with Tips

Connor works as a tour guide at Battle Harbour. He is paid an hourly wage of \$12.50 per hour, and is paid weekly. This month, he worked 8 hours a day, 5 days a week.



### gross pay

- total earnings from a salary, hourly wage, or other payment method, such as tips

a) What is Connor’s **gross pay** from his regular wages this month? Assume a 4-pay month.

b) Connor is an extremely helpful guide. For this reason, many tourists give him a tip ranging from \$2 to \$20. Connor keeps this money in a separate pocket. This month has been very busy. He earned the following amounts as tips.

Week 1: \$100

Week 2: \$120

Week 3: \$90

Week 4: \$160

How much does Connor earn, including tips?

### Solution

a) Connor writes down the basic information.

Work 8 h/day for 5 days each week

Paid \$12.50/h

4 wk last month

**Method 1: Work from the Amount Paid Per Week**

$$\begin{aligned}\# \text{ hours worked per week} &= \# \text{ hours worked per day} \times \\ &\quad \# \text{ days worked in the week} \\ &= 8 \times 5 \\ &= 40\end{aligned}$$

$$\begin{aligned} \text{Gross pay per week} &= \# \text{ hours worked} \\ &\quad \text{per week} \times \\ &\quad \text{hourly wage} \\ &= 40 \times 12.50 \\ &= 500 \end{aligned}$$

$$\begin{aligned} \text{Gross pay per month} &= \text{gross pay per} \\ &\quad \text{week} \times \# \text{ weeks} \\ &\quad \text{in a month} \\ &= 500 \times 4 \\ &= 2000 \end{aligned}$$

To calculate mentally, use numbers that are convenient to multiply.

$$12.50 = 12 + 0.50$$

$$12 \times 40 = 480$$

$$0.5 = \frac{1}{2}$$

$$\frac{1}{2} \text{ of } 40 = 40 \div 2 = 20$$

$$480 + 20 = 500$$

The answer is \$500.

Connor's gross pay for the month is \$2000.

### **Method 2: Work from the Total Hours Worked**

$$\begin{aligned} \text{Total hours worked} &= \# \text{ hours worked per day} \times \# \text{ days worked in} \\ &\quad \text{the week} \times \# \text{ weeks in month} \\ &= 8 \times 5 \times 4 \\ &= 160 \end{aligned}$$

$$\begin{aligned} \text{Gross pay} &= \# \text{ hours worked in month} \\ &\quad \times \text{hourly wage} \\ &= 160 \times 12.50 \\ &= 2000 \end{aligned}$$

To calculate mentally, use numbers that are convenient to multiply.

$$12.50 = 10 + 2 + 0.50$$

$$160 \times 10 = 1600$$

$$160 \times 2 = 320$$

$$0.5 \text{ of } 160 = 160 \div 2 = 80$$

$$1600 + 320 + 80 = 2000$$

The answer is \$2000.

Connor's gross pay this month is \$2000.

$$\begin{aligned} \text{b) Total amount of tips} &= \$100 + \$120 \\ &\quad + \$90 + \$160 \\ &= \$470 \end{aligned}$$

Connor's gross income is \$2470 this month, including tips.

### **Your Turn**

- Alana is a tour bus driver who gets paid \$12.75/h. A tour group gives her a \$95 tip. If the tour lasted 8 hours, what was her gross pay for the day, including tips?
- Alana works the following hours this week. Some of the days, she received a tip.
  - Monday: 8 hours
  - Tuesday: 9 hours + \$50 tip
  - Wednesday: 11 hours + \$75 tip
  - Thursday: Day off
  - Friday: 9 hours
  - Saturday: 11 hours + \$105 tip
 What is her gross pay this week?
- Alana is paid weekly. If she works the same number of hours as this week for 2 months, what is her gross monthly pay for a 4-pay month? a 5-pay month?

## Check Your Understanding

### Try It

1. Calculate the gross weekly pay for a each job. Assume each job is paid weekly.
  - a) \$11.00/h for 35 h
  - b) \$23.75/h for 25 h
  - c) \$18.35/h for 39.5 h
2. What is the hourly wage for each job?
  - a) \$403.20 for 36 hours
  - b) \$442.50 for 15 hours
  - c) \$750 for 40 hours
3.
  - a) Martha earns \$1800 a month. If she is paid weekly, how much is each pay? Assume a 5-pay month.
  - b) Devin earns \$15/h, and works 35 h a week. If he is paid bi-weekly, how much is each pay? Assume a 2-pay month.
4. Here is Ashleigh's work schedule for this week:

What other methods could you use to determine Martha's pay?

Monday	Tuesday	Wednesday	Thursday	Friday
11:00 p.m. – 6:00 a.m.	12:00 a.m. – 7:00 a.m.	11:00 p.m. – 5:00 a.m.	12:00 a.m. – 7:00 a.m.	11:00 p.m. – 4:00 a.m.

- a) How many hours will she work this week?
- b) Ashleigh earns \$13.50 per hour. What will her gross pay be for this week?

### Apply It

5. A construction labourer earns \$450 a week for working 35 hours. He is paid bi-weekly. He expected his gross monthly pay to be \$1800 this month, but when he adds up his paycheques he sees that he received \$2700. Explain why you think this has happened.



### Tools of the Trade

Drilling technicians repair and maintain hydraulic drillers that are used to cut through rocks and earth. They also work with computers and specialized software. To learn more about drilling technicians, go to [www.mhrmathatwork10.ca](http://www.mhrmathatwork10.ca) and follow the links.

6. a) Ross is a drilling technician who completes the following timesheet for this week. His wage is \$21/h. What is his gross pay this week?

Monday	Tuesday	Wednesday	Thursday	Friday
7:00 a.m. – 5:00 p.m.	7:30 a.m. – 4:30 p.m.	8:00 a.m. – 7:30 p.m.	7:00 a.m. – 4:00 p.m.	7:00 a.m. – 3:00 p.m.

- b) Ross works the same number of hours each week for 2 months. He is paid bi-weekly. How much does he receive in each pay in a month with two pays? three pays?



7. Spencer is a server at the Flat Rock Bar and Grill. His hourly wage is \$10.50/h. At the end of each shift, Spencer and the other servers pool their tips and divide the money evenly among themselves.

- a) One night, Spencer works from 5:30 p.m. until 1:00 a.m. He and five other servers earn a total of \$390 in tips. What is Spencer's gross pay for the night?
- b) This week, Spencer works 27 hours. He and five other servers collect \$525 in tips. What is Spencer's gross pay for the week?

8. Eli earns \$1450 a month at a clothing store. A competing store offers an hourly wage of \$10.50 per hour for 35 hours a week.

- a) Determine how much Eli would receive in each pay from each store if he is paid semi-monthly.
- b) Which job should Eli choose? Support your answer.



## On the Job 2

### Calculating Gross Pay with Overtime

Sarah works in a nursing home as a personal support worker (PSW). Her hourly wage is \$12.50/h. If she works over 40 hours in 1 week, she receives **overtime** for the extra hours. Overtime in her province is equal to 1.5 times her regular pay. This is often called “time-and-a-half.”



#### overtime

- payment for work done in addition to regular hours
- overtime is usually equal to 1.5 times regular pay, but it can be more

#### shift premium

- an additional payment made for working undesirable shifts, such as overnight shifts

This month, Sarah worked the following hours:

- Week 1: 38 hours
- Week 2: 45 hours
- Week 3: 42 hours
- Week 4: 35 hours
- Week 5: 40 hours

- a) How many overtime hours did Sarah work this month?
- b) Sarah is paid bi-weekly. What is her gross pay for her first paycheque this month?
- c) If Sarah works an overnight shift, she receives a **shift premium** of \$2/hour in addition to her regular pay. In week 4, Sarah worked only overnight shifts. What is her gross pay on her second paycheque this month?

### Solution

- a) Sarah examines her hours for each week. A week in which she worked more than 40 hours entitles her to overtime.

Week 1: 38 hours	no overtime
Week 2: 45 hours	$45 - 40 = 5$ overtime hours
Week 3: 42 hours	$42 - 40 = 2$ overtime hours
Week 4: 35 hours	no overtime
Week 5: 40 hours	no overtime

$$\begin{aligned}\text{Overtime hours} &= 5 + 2 \\ &= 7\end{aligned}$$

Sarah worked 7 overtime hours this month.

#### F.Y.I.

Time-and-a-half is calculated by multiplying the regular hourly pay by 1.5. If regular pay is \$ 10.00/h, time-and-a-half pay would be  $1.5 \times 10.00$ , or \$ 15.00/h.

**b)** Overtime pay =  $1.5 \times$  regular hourly wage  
=  $1.5 \times 12.50$   
= \$18.75

Sarah is paid bi-weekly. Her first paycheque this month will have the pay from week 1 and week 2.

Pay 1 = pay from week 1 + pay from week 2  
=  $38 \times 12.50 + 40 \times 12.50 + 5 \times 18.75$   
=  $475 + 500 + 93.75$   
= 1068.75

The gross pay on Sarah's first paycheque this month is \$1068.75

**c)** Shift premium = regular hourly wage + \$2  
=  $12.50 + 2$   
= 14.50

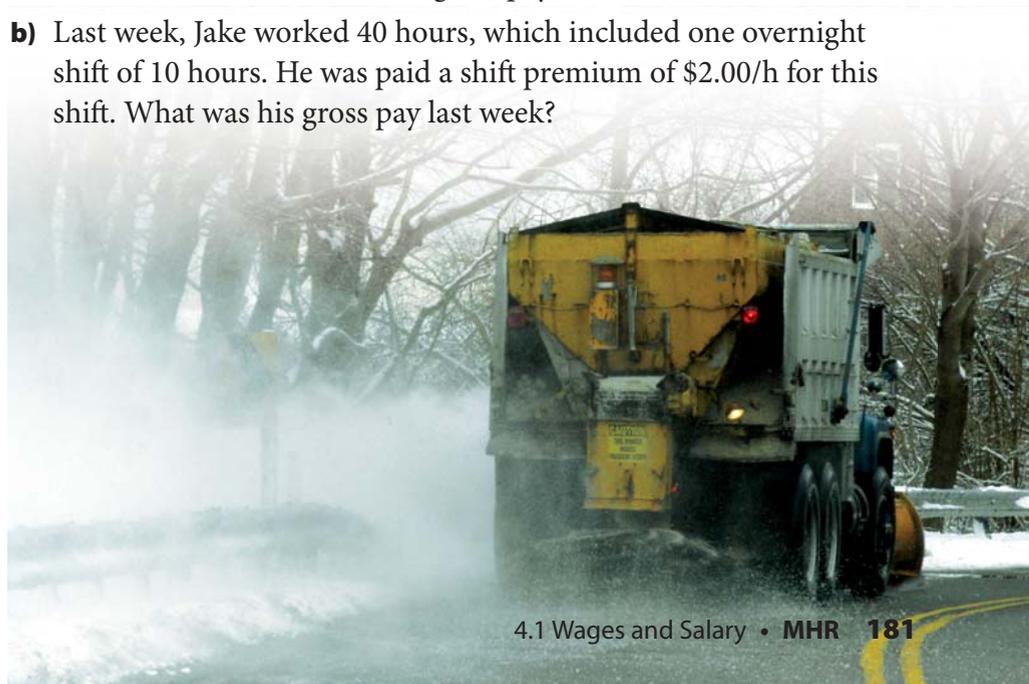
Sarah's second paycheque this month will have the pay from week 3 and week 4. Week 3 has overtime hours. Week 4 has no overtime, but she does receive a shift premium.

Pay 2 = pay from week 3 + pay from week 4  
=  $40 \times 12.50 + 2 \times 18.75 + 35 \times 14.50$   
=  $500 + 37.50 + 507.70$   
= 1045

The gross pay on Sarah's second paycheque this month is \$1045.

### Your Turn

- a)** Jake operates heavy equipment on Newfoundland highways. He earns \$20.50 per hour. He receives time-and-a-half overtime pay for working more than 40 hours in one week. This week, Jake worked 44 hours. What is his gross pay for this week?
- b)** Last week, Jake worked 40 hours, which included one overnight shift of 10 hours. He was paid a shift premium of \$2.00/h for this shift. What was his gross pay last week?



## Check Your Understanding

### Try It

1. Determine the time-and-a-half rate for each of the following hourly wages.
  - a) \$10.50
  - b) \$13.00
  - c) \$22.00
  
2. Calculate the double-time rate for each of the following hourly wages.
  - a) \$11.00
  - b) \$14.50
  - c) \$21.05
  
3. Joseph works in maintenance. If he works more than 40 hours a week, he receives time-and-a-half pay for the extra hours. His hourly wage is \$14.60. Calculate his gross weekly pay for each week.
  - a) Week 1: 42 h
  - b) Week 2: 35 h
  - c) Week 3: 46 h
  
4. a) A factory worker submits the weekly timesheet below. Time-and-a-half is paid for overtime hours over 44 hours a week. How many hours should the worker receive overtime pay for?

Monday	Tuesday	Wednesday	Thursday	Friday
5:00 a.m. – 11:00 a.m.	5:00 a.m. – 11:00 a.m.	6:00 a.m. – 11:00 a.m.	6:00 a.m. – 11:00 a.m.	5:00 a.m. – 11:00 a.m.
12:00 a.m. – 4:00 p.m.	12:00 a.m. – 4:00 p.m.	12:00 p.m. – 6:00 p.m.	12:00 p.m. – 6:00 p.m.	

- b) If the worker earns \$11.25/h for regular hours, how much should she receive in overtime pay this week?

### Apply It

5. Scott is a ferry captain. His regular pay is \$23.50/h. If he works on a holiday, he receives a shift premium of double time for those hours. Calculate his gross pay for the following week.

Sunday	Monday— Holiday	Tuesday	Wednesday	Thursday	Friday	Saturday
5 h	8 h	Day off	Day off	10 h	7 h	10 h

### F.Y.I.

Double time is calculated by multiplying the regular hourly pay by 2.

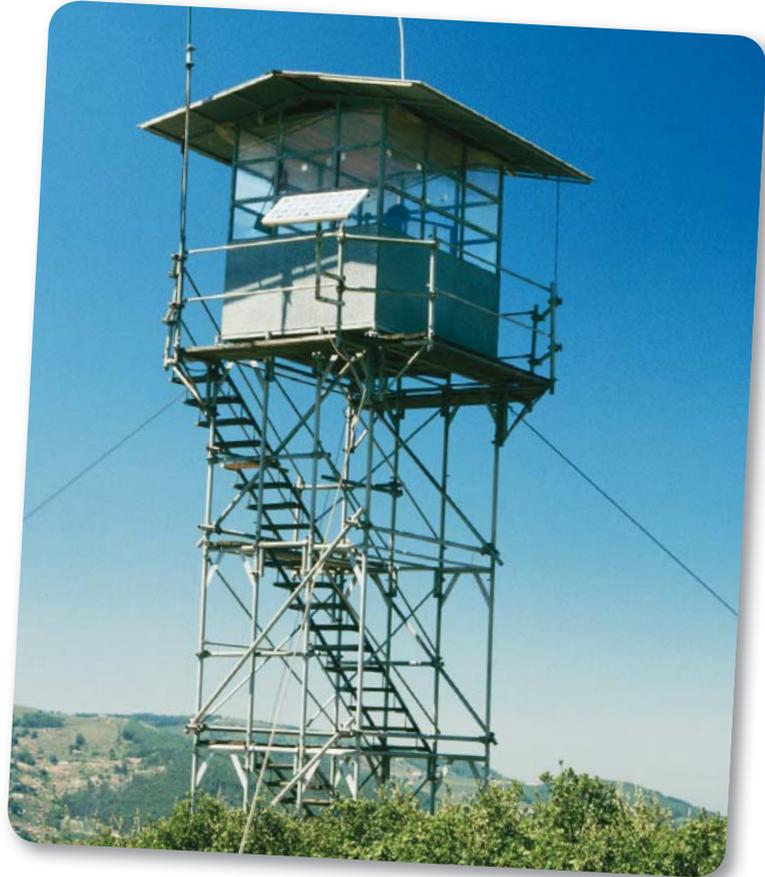
If regular pay is \$ 15.00/h, double-time pay is \$ 30.00/h.

6. Su-Ling works for the forestry department in Labrador watching for fires. She often works long hours during the summer. Her regular hourly wage is \$11.25/h. She earns a wage of \$14.75/h for overtime hours over 40 hours per week.

a) Calculate her gross pay for the following weeks.

Week 1	Week 2	Week 3	Week 4
60 h	35 h	52 h	54 h

b) What was her total gross pay for these 4 weeks?



7. A worker on an offshore oil rig earns \$35/h. Shifts are 12 hours in length and include 8 regular hours and 4 overtime hours. Time-and-a-half is earned for overtime hours.

a) Calculate the gross monthly pay for a worker who works 12 shifts this month.

b) If the worker is paid semi-monthly, what is the value of each pay?

## Work With It

1. Ben uses a spreadsheet to track his gross weekly pay. He uses the following information to create a spreadsheet using computer software.

- regular hourly pay = \$12.00/h
- overtime hours for more than 40 h per week
- overtime hourly pay (time-and-a-half) = \$18.00/h

	A	B	C	D	E	F	G
1	Week	Total Hours Worked	Overtime Hours Worked	Regular Hours Worked	Regular Pay	Overtime Pay	Gross Weekly Pay
2			=B-40		=12*D	=C*18	
3	Week 1	44	4	40	\$480	\$72	
4	Week 2	38	0	38	\$456	\$0	
5	Week 3	41	1	40	\$480	\$18	
6							
7							

- a) How could Ben use the spreadsheet to calculate his gross weekly pay? **Hint:** Which columns show the money Ben earned?
  - b) What is Ben's gross weekly pay for each week?
  - c) In week 4, Ben works 48 hours. What is his gross pay for that week?
  - d) What if Ben's regular hourly pay was \$14.50/h? Calculate what his gross pay would be for each week.
2. Michelle is looking for a job as a communications assistant at a charity. She finds two jobs that offer the following information.

*Job 1*

- Weekly salary = \$410 per week
- Working hours = 10 a.m. – 12:00 p.m., 1:00 p.m. – 6:30 p.m.,  
5 days per week
- Lunch break = 1 hour each day
- Overtime pay = none

*Job 2*

- Hourly wage = \$11/h
- Working hours = 7:30 a.m. – 11:30 a.m., 12:00 p.m. – 4:30 p.m.,  
5 days per week
- Lunch break =  $\frac{1}{2}$  hour each day
- Overtime pay = time-and-a-half, for over 40 hours

- a) Calculate the gross monthly pay for each job.
- b) Each job pays semi-monthly. How much is each pay for each job?
- c) Michelle calculated how her pay would change if she worked five extra hours per week at each job. What did she find out?

### Discuss It

3. List three jobs that are usually paid an hourly wage. What is the average hourly wage for each job?
4. List three jobs that are usually paid a salary. What is the average salary for each job?
5. List three jobs that could receive tips.
6. What is the maximum number of hours an employee can work before an employer must pay overtime in your province? How is overtime pay calculated?
7. You go on three interviews for a job as a spa technician. The jobs pay in the following ways:  
Job 1: hourly wage, \$15/h  
Job 2: hourly wage, \$12.15, plus tips  
Job 3: weekly salary, \$600  
Each job has a 40-hour work week. Which job would you choose? Explain.

#### Web Link

You can research how to calculate overtime in your province. Go to [www.mhrmathatwork10.ca](http://www.mhrmathatwork10.ca) and follow the links.

# 4.2

## Net Pay

I worked 76 hours at \$10/hour, so my cheque should be \$760. I'll never be able to afford the snowmobile! I'm going to talk to my boss.

### Focus On ...

- identifying the difference between gross pay and net pay
- determining deductions and net pay
- determining CPP, EI, and income tax deductions for a given gross pay
- identifying and correcting errors involving gross pay

*The pay Emmett receives is not the same as his gross pay. What are the reasons for this?*

### Explore Net Pay

#### Materials

- calculator

Emmett worked 76 hours at \$10/hour. He earned \$760 gross pay for this pay period. Here is the pay stub he received with his cheque.

Summary	Gross Pay	Deductions		Net Pay
Current	760.00	Income Tax	73.35	642.54
		CPP	30.96	
		EI	13.15	

CO FILE DEPT CLOCK CHEQUE NUMBER  
ASD 7580494 268945-001

Earnings Statement **CSG**<sup>TM</sup>

XYZ CORPORATION  
100A Smyth Road  
St. John's, NL

Employee name: Silvester, Emmett  
Occupation: Repair  
Period End Date: 05 / 31

### deductions

- an amount of money subtracted from gross pay
- include income tax, Canada Pension Plan (CPP), and Employment Insurance (EI)
- can also include union dues, vacation pay, and health or dental insurance

### net pay

- the amount you receive on a paycheque after deductions have been taken off
- also called take-home pay

### Tech Link

To calculate percent, use your  key.

1. What is Emmett's gross pay?
2. **a)** List the **deductions** taken from Emmett's pay.  
**b)** What was the amount of each deduction?  
**c)** What was the total amount of all deductions?

### F.Y.I.

- *Income tax is an amount of money paid to the provincial and federal governments based on the amount of money you earn.*
- *Canada Pension Plan (CPP) is a social insurance plan that provides money for people after they retire.*
- *Employment Insurance (EI) is a social insurance plan that provides money for people who are unemployed while they look for work.*

3. **a)** What is Emmett's **net pay**?  
**b)** How was it determined?
4. **Reflect**  
**a)** Emmett thinks that his pay should be higher. What do you think?  
**b)** Will Emmett ever be able to afford the snowmobile he wants? Explain your answer.
5. **Extend Your Understanding** Emmett is paid semi-monthly (24 pay periods per year).  
**a)** How many paycheques has Emmett received since the beginning of the year, including this one?  
**b)** If each paycheque was the same as this one, what is Emmett's net pay since the beginning of the year?

This is also known as "year-to-date" or YTD pay.

## On the Job 1

### Determining Net Pay When Deductions Are Given

Elaine receives a pay stub from her job as a physical therapist's assistant. She is paid weekly.

#### F.Y.I.

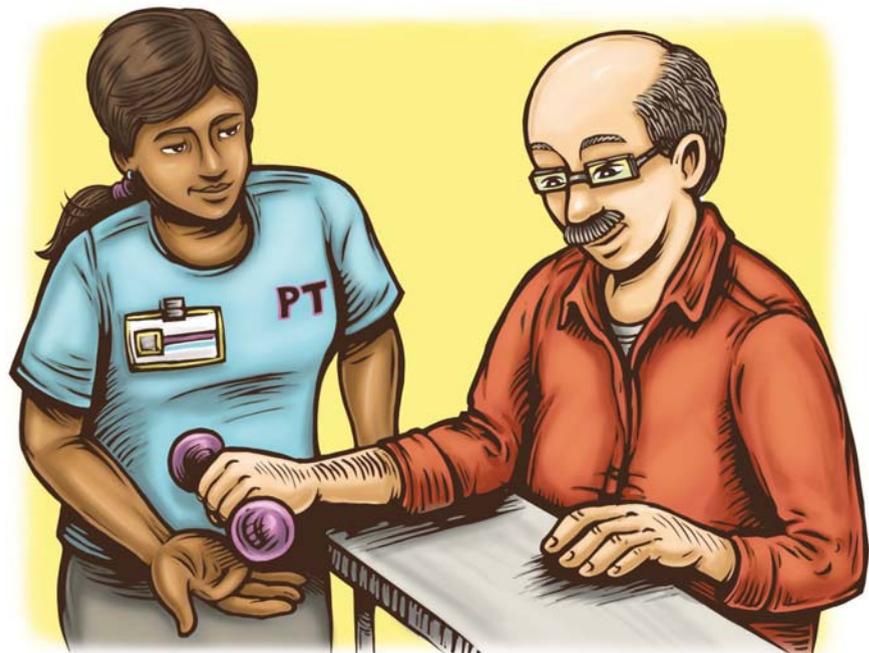
Vacation pay in many provinces is equal to 4% of each pay. It is paid to employees instead of wages that they would have earned during their vacation time.

#### Earnings Statement

Employee name: Meyers, Elaine  
Occupation: Physical Therapist's Assistant  
Period End Date: 20\_\_ / 02 / 15  
Cheque Number: 79834

Earnings				Deductions	
Description	Hours	Rate	Amount	Description	Amount
Regular Hours	40.0	13.00	A	Income Tax	130.53
Overtime	4.0	19.50	B	EI	10.76
Vacation Pay			24.20	CPP	27.47
<b>Gross Pay</b>			C	<b>Total Deductions</b>	D
				<b>Net Pay</b>	E

- Calculate how much Elaine was paid for
  - regular hours (A)
  - overtime hours (B)
- What is Elaine's gross pay (C)?
- What are the total deductions from Elaine's gross pay (D)?  
What is her net pay for this pay period (E)?



## Solution

- a) Elaine worked 40 h @ \$13/h. She worked 4 h @ \$19.50/h

$$\begin{aligned}\text{Regular earnings} &= 40 \times 13 \\ &= 520\end{aligned}$$

$$\begin{aligned}\text{Overtime earnings} &= 4 \times 19.50 \\ &= 78\end{aligned}$$

Elaine earned \$520 for regular hours and \$78 for overtime hours.

- b) Gross pay = regular earnings + overtime earnings + vacation pay  
 $= 520 + 78 + 24.20$   
 $= 622.20$

Elaine's gross pay is \$622.20.

- c) To calculate her net pay, Elaine subtracts her deductions from her gross pay.

$$\begin{aligned}\text{Total deductions} &= \text{income tax} + \text{EI} + \text{CPP} \\ &= 130.53 + 10.76 + 27.47 \\ &= 168.76\end{aligned}$$

$$\begin{aligned}\text{Net pay} &= \text{gross pay} - \text{deductions} \\ &= 622.20 - 168.76 \\ &= 453.44\end{aligned}$$

Elaine's net pay for this pay period is \$453.44.



### Tools of the Trade

Roughnecks are labourers who work on an oil rig. Their duties can include connecting pipes to well bores and assisting with the construction of the derrick. To learn more about the types of jobs done by roughnecks, go to [www.mhrmathatwork10.ca](http://www.mhrmathatwork10.ca) and follow the links.

## Your Turn

Below is a pay stub for a roughneck working on the Hibernia offshore oil rig, off the coast of Newfoundland.

Earnings Statement					
XYZ CORPORATION 100A Smyth Road St. John's, NL			Employee name: Stokes, Martin Occupation: Roughneck Period End Date: 20__ / 05 / 31 Cheque Number: 268945-001		
Earnings				Deductions	
Description	Hours	Rate	Amount	Description	Amount
Regular Hours	40.0	24.00	A	Income Tax	211.32
Overtime	10.0	36.50	B	EI	61.29
Vacation Pay			52.80	CPP	74.50
<b>Gross Pay</b>			<b>C</b>	<b>Total Deductions</b>	<b>D</b>
				<b>Net Pay</b>	<b>E</b>

- a) Calculate the gross pay for this pay period (D).  
 b) How much did the roughneck receive on this paycheque (E)?

## Check Your Understanding

### Try It

- Calculate the net pay for the following pay stubs.
  - gross pay: \$1615.50, deductions: \$378.42
  - gross pay: \$3692.25, deductions: \$1263.08
- Determine the total deductions for the following pay stubs.
  - income tax: \$506.23, CPP: \$126.56, EI: 63.27, union dues: \$60.00
  - income tax: \$276.98, CPP: \$47.88, EI: \$21.78, health insurance: \$47.98
- The net pay and total deductions for a pay stub are known. What is the gross pay?
  - deductions: \$704.36, net pay: \$1697.24
  - deductions: \$181.20, net pay: \$874.66
- Determine the total deductions from the following pay stubs.
  - gross pay: \$7868.74, net pay: \$6457.00
  - gross pay: \$63 967.14, net pay: \$42 475.41

#### F.Y.I.

- Union dues are regular payments made by employees who belong to a union. These dues fund the union's activities.
- Health insurance deductions cover the costs of health care that are not covered by provincial health insurance.

#### F.Y.I.

“YTD” means year-to-date. This is the total amount of money or deductions made from the beginning of the year until the current pay stub.

### Apply It

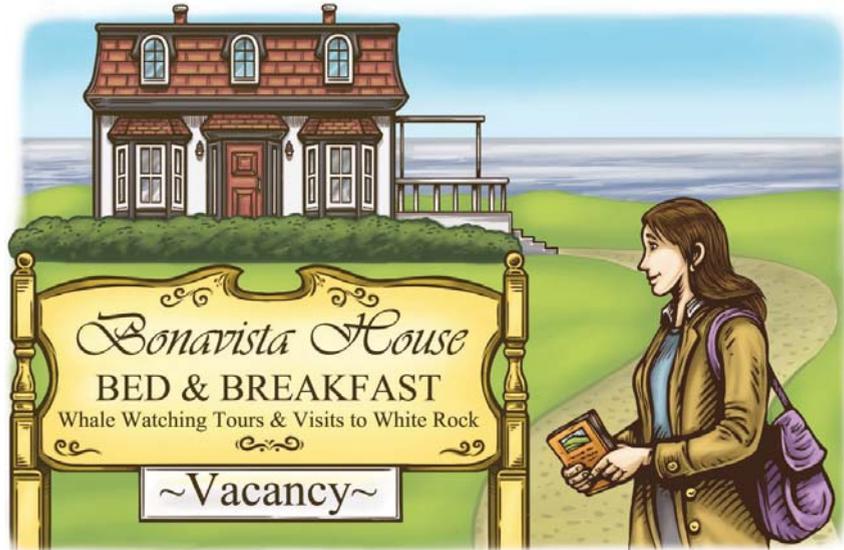
- Aiden received a pay stub for his job as a school maintenance worker on the last work day of March. This is his 6th paycheque this year. He worked the same number of regular and overtime hours each pay period. For the current pay stub, calculate
  - the year-to-date regular hourly pay (A)
  - the year-to-date gross pay (B)
  - the year-to-date total deductions (C)
  - the current net pay (D)
  - the year-to-date net pay (E)

Earnings		Rate	Hours	Current	YTD
Regular		11.00	80	880.00	A
Overtime		16.50	10	165.00	990.00
<b>Gross Pay</b>				1045.00	B
Deduction				Current	YTD
Income Tax				133.73	802.38
CPP				45.06	270.36
EI				18.08	108.48
Health Care				22.50	135.00
<b>Total Deductions</b>				220.09	C
<b>Net Pay</b>				D	E

## On the Job 2

### Calculate Income Tax, CPP, and EI for a Given Gross Pay

As a housekeeper at a bed and breakfast in Bonavista, Sonya earns \$505 weekly. Starting in January, she calculates her total net income for the year. Determine Sonya's net income for this year.



#### F.Y.I.

- income tax and EI rates change from year to year
- there is a maximum annual amount of EI and CPP that a person must pay, which changes from year to year
- to find the rates for this year, go to [www.mhrmathatwork10.ca](http://www.mhrmathatwork10.ca) and follow the links

#### Solution

When Sonya researches the current rates she finds out the following:

- federal income tax is 15% of gross income
- provincial income tax is 7.7% of gross income
- CPP is 4.95% of gross income, to a maximum of \$2163.15
- EI is 1.73% of gross income, to a maximum of \$747.36

#### Method 1: Work From the Weekly Pay

Sonya calculates the amount of each deduction from her weekly pay. She then finds the total deductions for one week.

$$\begin{aligned}\text{Federal income tax} &= 15\% \text{ of } \$505 \\ &= 75.75\end{aligned}$$

$$\begin{array}{|c|c|c|c|c|} \hline \text{C} & 15 & \% & \times & 505 & = \\ \hline & & & & & 75.75 \\ \hline \end{array}$$

$$\begin{aligned}\text{Provincial income tax} &= 7.7\% \text{ of } \$505 \\ &= 38.885 \\ &= 38.89\end{aligned}$$

$$\begin{array}{|c|c|c|c|c|} \hline \text{C} & 7.7 & \% & \times & 505 & = \\ \hline & & & & & 38.885 \\ \hline \end{array}$$

$$\begin{aligned}\text{Total income tax} &= 75.75 + 38.89 \\ &= 114.64\end{aligned}$$

Round to the nearest cent.

$$\begin{aligned} \text{CPP} &= 4.95\% \text{ of } 505 \\ &= 24.9975 \\ &= 25.00 \end{aligned}$$

Round to the nearest cent.

$$\text{C } 4.95 \% \times 505 = 24.9975$$

$$\begin{aligned} \text{EI} &= 1.73\% \text{ of } \$505 \\ &= 8.7365 \\ &= 8.74 \end{aligned}$$

Round to the nearest cent.

$$\text{C } 1.73 \% \times 505 = 8.7365$$

$$\begin{aligned} \text{Total deductions for 1 week} &= \text{income tax} + \text{CPP} + \text{EI} \\ &= 114.64 + 25.00 + 8.74 \\ &= 148.38 \end{aligned}$$

Sonya's deductions for one week total \$148.38. She calculates her weekly net pay.

$$\begin{aligned} \text{Net pay} &= \text{gross pay} - \text{deductions} \\ &= 505 - 148.38 \\ &= 356.62 \end{aligned}$$

Her weekly net pay is \$356.62.  
She works 50 weeks of the year.

$$\begin{aligned} \text{Annual net pay} &= 356.62 \times 50 \\ &= 17\,831 \end{aligned}$$

Sonya's annual net pay is \$17 831.

### **Method 2: Work From the Annual Wage**

Sonya makes \$505 per week for 50 weeks.

$$\begin{aligned} \text{Annual gross} &= 505 \times 50 \\ &= 25\,250 \end{aligned}$$

Sonya grosses \$25 250 each year.

Add federal and provincial income tax percentages.

$$15\% + 7.7\% = 22.7\%$$

$$\begin{aligned} \text{Income tax} &= 22.7\% \text{ of } \$25\,250 \\ &= 5731.75 \end{aligned}$$

$$\text{C } 22.7 \% \times 25\,250 = 5731.75$$

$$\begin{aligned} \text{CPP} &= 4.95\% \text{ of } 25\,250 \\ &= 1249.875 \\ &= 1249.88 \end{aligned}$$

Round to the nearest cent.

$$\text{C } 4.95 \% \times 25\,250 = 1249.875$$

### **Tech Link**

To calculate tax, CPP, EI, and other deductions online, go to [www.mhrmathatwork10.ca](http://www.mhrmathatwork10.ca) and follow the links.

$$\begin{aligned} \text{EI} &= 1.73\% \text{ of } \$25\,250 \\ &= 436.825 \\ &= 436.83 \end{aligned}$$

$$\boxed{C} \quad \boxed{1.73} \quad \boxed{\%} \quad \boxed{\times} \quad \boxed{25\,250} \quad \boxed{=} \\ 436.825$$

Round to the nearest cent.

$$\begin{aligned} \text{Total deductions} &= \text{income tax} + \text{CPP} + \text{EI} \\ &= 5731.75 + 1249.88 + 436.83 \\ &= 7448.46 \end{aligned}$$

$$\begin{aligned} \text{Net pay} &= \text{gross pay} - \text{deductions} \\ &= 25\,250 - 7448.46 \\ &= 17\,801.54 \end{aligned}$$

Sonya's annual net pay is \$17 801.54.

The extra 54¢ is a result of rounding.

### Your Turn

Darren's annual gross salary as a boat engine mechanic is \$30 987.00.

He finds the following deduction rates online:

- federal income tax = 15% of gross income
- provincial income tax = 7.7% of gross income
- CPP = 4.95% of gross income, to a maximum of \$2163.15
- EI = 1.73% of gross income, to a maximum of \$747.36

- a) What are the total deductions from Darren's gross annual pay?
- b) What is Darren's annual net income?
- c) If Darren is paid bi-weekly, what are his net earnings for one paycheque?

## Check Your Understanding

### Try It

Use the following rates when answering these questions.

- federal income tax = 15% of gross income
- provincial income tax = 7.7% of gross income
- CPP = 4.95% of gross income, to a maximum of \$2163.15
- EI = 1.73% of gross income, to a maximum of \$747.36

1. Calculate the total income tax deductions for each worker's pay.

- A floral designer earns \$429.23 gross per week.
- A caterer earns \$22 590.00 gross per year.

2. For each worker in #1, calculate the CPP deductions.

3. For each worker in #1, calculate the EI deductions.

4. Using the answers from #1 to #3, calculate each worker's net pay.

5. a) A truck driver earns \$3675.50 gross per month. What are his EI and CPP deductions?

b) How does this person's gross pay affect his deductions?

6. Mary earns a monthly salary. She is paid on the 15th and the last day of each month. The EI deduction of each of Mary's pays is \$55.18.

a) How many pays will it take for Mary to reach the maximum amount of EI deductions?

b) On what date will Mary reach the maximum amount?



The maximum amount of EI deductions is \$747.36 per year.

## Apply It

7. Yau works part-time and is paid semi-monthly. His hours are the same each week. For his current pay stub, calculate

Earnings					Deductions		
Pay Period: March 31							
Type	Hours	Rate	Amount	YTD	Type	Current	YTD
Regular	20	10.50	210.00	A	Income Tax	0	0
					EI	3.74	22.44
					CPP	3.18	19.08
Summary		Gross Pay		Deductions		Net Pay	
Current		210		6.92		D	
Year To Date		B		C		E	

- the year-to-date regular hourly pay (A)
- the year-to-date gross pay (B)
- the year-to-date total deductions (C)
- the current net pay (D)
- the year-to-date net pay (E)

An employee must earn more than \$10 527 gross a year for income tax to be deducted. How much does Yau earn gross per year?

### F.Y.I.

- RRSPs are registered retirement savings plans. They provide additional income to people when they retire.
- Dental coverage helps people pay for dental work.

8. Caleb works in a seafood processing plant. His monthly gross pay is \$3095.00. In addition to deductions for income tax, CPP, and EI, he has the following deductions from his gross pay.
- RRSP: \$135.00
  - dental coverage: \$67.00
  - life insurance: \$23.50
  - union dues: \$10.50
- Calculate the total income tax, CPP, and EI deductions from Caleb's gross monthly pay.
  - Total the other deductions from Caleb's gross monthly pay.
  - What is Caleb's net monthly pay?
9. Jessica's gross pay for the last two weeks was \$1625.40. Her employer neglected to give her vacation pay. Jessica estimates that she should get about \$4 of vacation pay for every \$100 of her gross pay. She says that her employer owes her about \$64 in vacation pay. Is she correct? Explain.

## Work With It

Use the following rates when answering these questions.

- federal income tax = 15% of gross income
- provincial income tax = 7.7% of gross income
- CPP = 4.95% of gross income, to a maximum of \$2163.15
- EI = 1.73% of gross income, to a maximum of \$747.36

- a) Chantal earns \$2595 gross per month. What is her net weekly pay? Assume a 4-pay month.
  - b) Jonathan earns \$27 490 gross per year. What is his net monthly pay?
- Isabel earns \$13 per hour. If she works more than 40 hours in one week, she receives time-and-a-half for the overtime hours. This week, Isabel worked 50 hours.

  - a) What was Isabel's gross pay this week?
  - b) What was her net pay this week?
- Jessa is an administrative assistant. She earns \$1600/month, plus vacation pay. She does not receive overtime pay. She has a deduction of \$28/month for dental coverage. What is Jessa's net monthly pay?
- Blake works for a printer. He earns \$12/hour, with time-and-a-half paid for overtime hours over 40 hours/week. He receives vacation pay and has a deduction of \$10/week for life insurance. This week, he worked 48 hours. What is his net pay?
- An industrial carpenter provides finish work for new stores. The details of his job are

  - regular hourly wage: \$24.30 per hour
  - overtime pay (time-and-a-half) for more than 40 hours per week
  - health insurance deduction: \$28 per month
  - union dues: \$5.50 per month
  - paid bi-weekly
  - a) Calculate the carpenter's gross income for this week if he works 42 hours.
  - b) Calculate the carpenter's total deductions for this week.
  - c) What is the carpenter's net pay this month? Assume a 3-pay month.

Find the deductions for CPP, EI, and income tax.  
Vacation pay is 4%.

## Discuss It

6. Darren and Li are researching jobs online. They find that an automotive parts salesperson can earn a gross annual salary of \$44 000. They each calculate the salesperson's CPP and EI deductions.

*Darren's Calculations:*

CPP = \$2178.00

EI = \$761.20

*Li's Calculations:*

CPP = \$2163.00

EI = \$747.36

Who is correct? Explain your answer.



7. Carrie is offered a choice of two jobs.



Carrie decides to take Job 2 because she says that it pays more.

- a) Is she correct?
- b) If all other things were equal, which job would you suggest that Carrie take? Explain.
8. Rachael's gross pay is \$1800/month. Raeann's gross salary is \$21 600/year. Will their yearly net pays be different? Why or why not?

# 4.3

## Other Forms of Income

### Focus On ...

- identifying types of employment where commission is paid
- determining gross pay for commission earnings
- determining earnings for piecework and contract work
- describing the advantages and disadvantages of different methods of earning income

*For someone who earns commission, the total amount of sales is important.*

### Materials

- automotive section of newspaper
- computer with Internet access (optional)
- calculator

### Explore Commission

David sells used cars and trucks. He earns a **commission** on each car he sells. Reagan sells new cars and trucks, and earns a base salary plus commission. They wonder who makes more for the amount of hours they work.

## commission

- income based on amount of sales
- often a percent of the sale price of an item or service

1. Research the price of three used cars or trucks at dealerships in your area.
2. Research the price of three new cars or trucks at dealerships in your area.
3. Suppose David makes 6% commission on the sale of each used vehicle he sells. He sells each of the three used vehicles you researched. How much does David earn?
4. Reagan earns \$10/hour plus 3% on each new vehicle she sells. This week, she worked 35 hours and sold each of the three new vehicles you researched. How much did Reagan earn this week?
5. David worked 40 hours to sell his three vehicles. He calculated how much he received for each hour he worked and compared it to what Reagan received per hour. Who got the better hourly rate out of their commission deal this week?
6. **Reflect**
  - a) Which payment method would you prefer? Explain.
  - b) Would your answer to part a) change if David had sold one more vehicle? Explain.
  - c) Would it have changed if Reagan sold one more vehicle?
7. **Extend Your Understanding** Compare your answers to #5 and #6 with the answers developed by classmates who chose different vehicles than you did. What factors affect the amount of money received by commission salespeople?

## On the Job 1

### Calculate Commission

Zachary has a choice between two jobs.

Prestige Men's Clothing	Taylor's Menswear
<ul style="list-style-type: none"><li>• receive 8% commission on sales</li><li>• last person sold about \$10 000 a week</li><li>• bonus paid for sales over \$50 000 a month</li></ul>	<ul style="list-style-type: none"><li>• receive \$300 per week</li><li>• receive 3% commission on sales</li><li>• last person sold about \$15 000 a week</li></ul>

- If Zachary's information is correct, what would his weekly gross pay be at Prestige Men's Clothing?
- What would his weekly gross pay be if he takes the job at Taylor's Menswear?
- Which job would you recommend to Zachary? Why?

### Solution

- a) At Prestige Men's Clothing, the commission rate is 8%.

Zachary calculates 8% of \$ 10 000.

$$\begin{aligned}\text{Commission} &= 8\% \text{ of } \$10\,000 \\ &= 800\end{aligned}$$



C 8 % × 10000 =  
800

Zachary's weekly gross pay at Prestige Men's Clothing would be around \$800.

- b) At Taylor's Menswear, a salesperson makes a weekly salary of \$300.

The commission rate is 3%.

Zachary calculates 3% of \$ 15 000.

$$\begin{aligned}\text{Commission} &= 3\% \text{ of } \$15\,000 \\ &= 450\end{aligned}$$



C 3 % × 15000 =  
450

$$\begin{aligned}\text{Gross pay} &= \text{base salary} + \text{commission} \\ &= 300 + 450 \\ &= 750\end{aligned}$$

At Taylor's Menswear, Zachary would earn about \$750 each week.

**bonus**

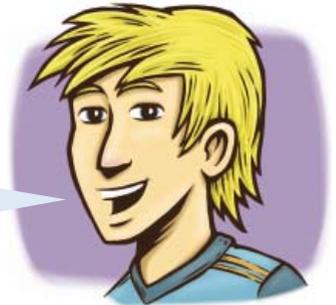
- an amount of money paid to an employee as a reward for higher sales or a job well done

c) Zachary is not sure which job to take. He makes up a +/– organizer.

Payment Method	+	–
Commission (Prestige Men’s Clothing)	<ul style="list-style-type: none"><li>• The commission rate is higher.</li><li>• It looks as though I would make more there.</li><li>• If sales are high, so is my income. Christmas sales might be really good and I could earn a <b>bonus!</b></li></ul>	<ul style="list-style-type: none"><li>• I will not have a base salary.</li><li>• If sales are down, so is my income.</li></ul>
Wage plus commission (Taylor’s Menswear)	<ul style="list-style-type: none"><li>• I get a base salary.</li><li>• If sales are down, I still have something.</li></ul>	<ul style="list-style-type: none"><li>• If sales are high, I do not get as much.</li></ul>



I recommend that Zachary take the job at Prestige Men’s Clothing because he has a better chance of making more money there.



I recommend that Zachary take the job at Taylor’s Menswear because he will always have some income, no matter how bad sales are.

**Your Turn**

- a) Kim has been hired as a salesperson for a jewellery store. She has a base salary of \$625. She earns 5% on all sales. In one week, her sales are \$4000. What is her gross income for the week?
- b) Kim’s best friend works at another jewellery store in the same mall. She is on commission and gets 12% of sales. The week before Christmas, she sells \$16 000 worth of jewellery. What is her gross income that week?
- c) What are the benefits and drawbacks of paying salespeople commission from the store owner’s point of view? Make a +/– organizer to explain your thinking.



## Check Your Understanding

### Try It

1. Estimate.
  - a) 10% of \$1043.95
  - b) 8% of \$2319.00
  - c) 2.4% of \$8990.00
2. Calculate each of the amounts from #1. How close were your estimates?
3. Each of the workers below earns a weekly base salary plus a commission on sales. Calculate their gross weekly salary.
  - a) base salary: \$658, commission: 6% of \$1785
  - b) base salary: \$250, commission: 11% of \$12 560
  - c) base salary: \$250, commission: 20% of \$4244.50
4. Calculate each person's gross weekly pay.
  - a) Claude sold \$50 975 of automobiles. His commission rate is 2.5%.
  - b) Jordon sold a house worth \$235 900. His commission rate is 3%.
  - c) Neeta sold \$3905 worth of clothing. Her commission rate is 6%.



## Apply It

- 5.** Deirdre has two job offers.
- Job 1: Commission of 12% on sales
- Job 2: Base salary of \$600 plus commission of 5% on sales
- Which method of payment would earn Deirdre the most for typical weekly sales of \$9000?
- 6.** Deirdre wrote down the information incorrectly. Job 2 in #5 offers a commission of 6%. How will that affect which job would pay more?
- 7.** Morgan installs home water filter systems that cost \$250. He earns a commission of 20% for every system he sells and installs.
- a)** Morgan sells and installs two water systems a day for 5 days. What is his gross weekly pay?
- b)** Morgan makes these sales for this month.
- Week 1: 10 systems sold
  - Week 2: 5 systems sold
  - Week 3: 8 systems sold
  - Week 4: 4 systems sold
  - Week 5: 5 systems sold
- He is paid weekly. What is his gross pay for this month?
- 8.** An appliance company sells restaurant appliances and equipment. They offer a job that pays a base salary of \$450/week, plus commission of 5% of sales. If a salesperson sells more than \$20 000 of equipment a week, they receive a bonus of \$200.
- a)** A salesperson sells \$15 000/week for 1 month. What is her weekly gross pay?
- b)** Charley sold \$21 500 of equipment this week. What is his gross weekly pay?

## On the Job 2

### Calculate Payment for Piecework and Contract Work

#### piecework

- an amount of money earned per unit of work
- a unit of work may be a planted tree, a completed piece of clothing, or a typed article



#### contract

- an agreement between an employer and employee
- it states that a certain amount of work is to be completed within a set period of time for a set amount of pay

- a) Sherry is hired by the Department of Natural Resources to plant trees for the summer. She is paid **piecework**. Sherry plants 3500 trees per week for 6 weeks. She is paid \$0.17 per tree. What is her gross pay for the 6 weeks?

- b) Calvin has been hired on **contract** to plant trees for a large nursery. He must plant 4000 trees a week for 6 weeks. If he does this, he receives \$700 each week. When he completes his contract, he will receive a \$100 bonus. What is his gross pay for the 6 weeks?
- c) During the 6 weeks, Calvin kept track of the trees he planted. He usually planted 800 trees per day. At the end of their 6 weeks, Sherry and Calvin discussed their jobs and the two payment methods. Which payment method is preferable?

#### Solution

- a) Sherry plants 3500 trees per week. She is paid \$0.17 per tree. She works for 6 weeks.

##### **Method 1: Calculate the Gross Pay Per Week**

$$3500 \times 0.17 = 595$$

Sherry would earn \$595 per week.

$$595 \times 6 = 3570$$

This is \$3570 in 6 weeks.

##### **Method 2: Calculate the Number of Trees Planted**

$$3500 \times 6 = 21\,000$$

Sherry plants 21 000 trees in 6 weeks.

$$21\,000 \times 0.17 = 3570$$

She earns \$3570.

- b) Calvin receives \$700 per week. He works for 6 weeks.

$$700 \times 6 = 4200$$

$$\begin{aligned} \text{Pay} + \text{bonus} &= 4200 + 100 \\ &= 4300 \end{aligned}$$

Calvin earns \$4300 in the 6 weeks.

- c) Sherry and Calvin develop a +/– organizer to discuss their payment methods.

Method	+	–
Piecework	<ul style="list-style-type: none"> <li>• People are paid according to the number of trees planted. People who plant more trees make more money.</li> <li>• They could work fewer long days and still make the same amount, depending on how many trees they plant.</li> </ul>	<ul style="list-style-type: none"> <li>• People who plant fewer trees make less money. One of Sherry's co-workers had a sore arm. She planted only 2000 trees per week and earned \$2040.</li> </ul>
Contract	<ul style="list-style-type: none"> <li>• If they complete their work quickly, they will make the same amount of money and have free time.</li> <li>• Calvin can earn a bonus if he completes all his work on time.</li> </ul>	<ul style="list-style-type: none"> <li>• Someone who works faster will not earn more money, because they only have to plant a certain amount of trees per week.</li> </ul>



### Your Turn

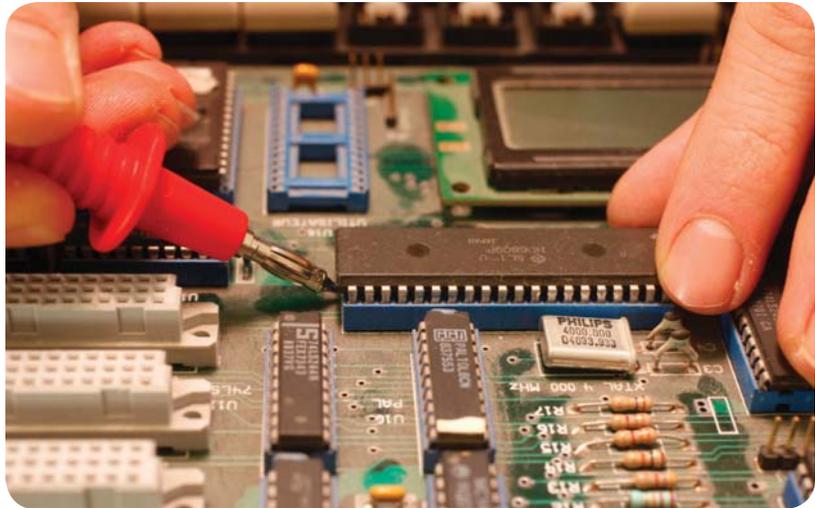
- a) Pierre wants to work from home and does not want to work weekends. He has found a job stuffing envelopes. He can stuff 5000 envelopes per day. The job pays 2.5¢ per envelope. How much can Pierre earn in a 5-day week?
- b) The next week, Pierre gets a job stuffing envelopes for another client. This client has 30 000 envelopes to stuff. Pierre will earn \$700 if he stuffs all the envelopes in 5 days. Otherwise he will earn \$600. Which of these jobs would you prefer? Give two reasons for your choice.

## Check Your Understanding

### Try It



1. Calculate the total earnings for Joan and Manuel.
  - a) Joan is a seamstress who is paid \$11.55 for each pair of pants she makes. How much does she earn if she makes 35 pairs of pants?
  - b) Manuel packs vegetables to ship to grocery stores. He is paid \$4.50 for each box he packs. How much does he make if he packs 200 boxes?
2. Determine each worker's gross earnings.
  - a) Susan assembles computer parts at the rate of 42 per hour. She works for 8 hours and is paid \$0.45/part.
  - b) Len tests circuit boards. He can perform 4 tests per hour. He works for 7 hours and is paid \$4.25 per test.

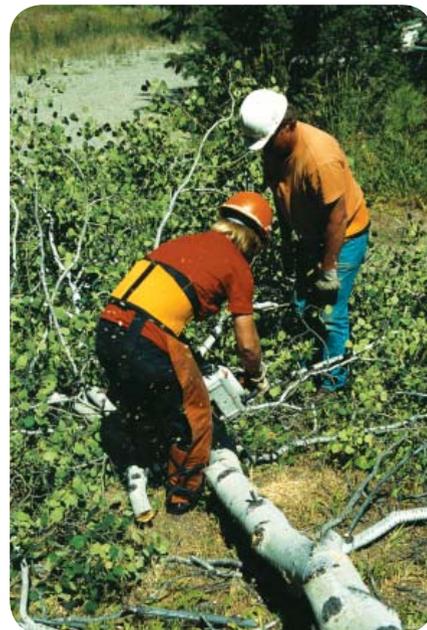


3.
  - a) A berry picker is paid \$0.30 per container of berries. How many containers need to be picked to earn \$45?
  - b) A warehouse worker packs boxes and receives \$3.75/box. How many boxes need to be packed to earn \$105?



## Apply It

- 4.** The manager of a fashion web site hires Avery to post 150 articles on the site in her spare time. The manager will pay Avery \$200 if she posts the articles in one day, or will pay \$1.50 per article. What method of payment would you choose if you were Avery? Explain.
- 5.** A farmer is hired to clear 4 hectares of land in his spare time. Each hectare has approximately 60 trees. The farmer has a choice of two payment methods.
- Option 1: \$12.50 for each tree cleared
- Option 2: \$3350 to complete the job in 2 weeks
- a)** It is haying season. The farmer is very busy, but he does not want to turn down the job. Which payment method will he choose? How much will he receive when the job is done?
- b)** It is late fall and the farmer's crops are all in. Which option will he choose now? Explain.
- 6.** Karl assembles bicycles for a sports shop. He is paid \$19.75 for each bicycle he assembles. How many bicycles would he need to assemble to earn \$316?
- 7.** Laura is hired to package a rush order of seafood. A box of packaged seafood contains 40 packages. Laura has the option of being paid to package 100 boxes at \$0.20/package by the end of the day, or she can complete the order by noon for \$750.
- a)** Which payment option would you choose? Explain.
- b)** What if the noon rate were raised to \$900? Would it be worthwhile for Laura to try to get this job done by noon?



## Work With It

1. Jayson works at an electronics store and is paid 8% commission on his sales. He receives a bonus of \$200 if his weekly sales are \$8000 or more. Jayson's sales for this week are shown here.

<b>Monday</b>	\$1500.00
<b>Tuesday</b>	\$3500.00
<b>Wednesday</b>	\$900.00
<b>Thursday</b>	\$1360.00
<b>Friday</b>	\$765.50

- a) Calculate Jayson's total sales for this week. Will he earn a bonus?
- b) Calculate Jayson's gross pay for this week.
- c) Jayson pays income tax at a rate of 22.7% on his gross pay. How much income tax will he pay for this week?
2. a) Hayden is a sales associate at a furniture store. She is paid \$11.25/h and receives a commission of 8% of sales. Last week, she worked 30 hours and her sales were \$5300. What were her gross earnings for last week?
- b) Hayden pays EI at a rate of 1.73%. What will be her EI deduction on this pay?
3. a) Jeffery sells farm equipment. He is paid a commission of 15% on \$8000 in sales. What is his gross pay?
- b) What is his net pay after income tax, EI, and CPP have been deducted? Use the rates of 22.7%, 1.73%, and 4.95% respectively.
4. McKenzie is hired by a local charity to create 75 gift baskets. She can be paid \$2.55 per basket, or she can complete the baskets in 2 days for \$200. Which payment method would you recommend that she choose? Why?

## Discuss It

- 5.** A home renovation company wants to hire two people to book renovation appointments. They are discussing payment methods for the new employees.

Method 1: commission of 3.5% on the earnings from each renovation they book

Method 2: \$10/h plus a commission of 1.5% on renovation earnings

- a)** Suppose you are a supervisor at the company. List two advantages and two disadvantages of each payment method, from your point of view.
- b)** Suppose you are a job applicant. Which payment method would you choose? Explain your choice.
- 6. a)** You are looking for a job in furniture sales, and Hand-Crafted Furniture makes you an offer. The store pays 5.5% commission. According to the owner, salespeople typically sell about \$11 000 each week. Estimate the typical weekly sales of a salesperson at Hand-Crafted Furniture.
- b)** How much would you make each week if your commission rate was raised to 6.5%?
- c)** How much would you make if you sold \$13 500 per week at the 5.5% commission rate?
- 7.** Luke is a lumper for a large warehouse. Three large shipments come in to the warehouse. He can be paid \$75 for each shipment he unloads, or he can unload all of the shipments in one shift for \$400. If you were Luke, how would you prefer to be paid? Make a +/− organizer and explain your choice to a classmate.
- 8.** You need to buy a new cell phone. A friend tells you that most salespeople at electronics stores are paid by commission. How would this affect which store you shop at? How would this affect which cell phone you decide to buy?

### F.Y.I.

A lumper is another name for a person who unloads objects or packages from large trucks.

### What You Need to Know

#### Section After this section, I know how to . . .

- 4.1**
- identify jobs that earn an hourly wage, wage and tips, or a salary
  - determine the number of hours worked from a time schedule
  - determine gross pay including time-and-a-half or double time
  - identify errors in gross pay
- 4.2**
- identify the difference between gross pay and net pay
  - determine total deductions and net pay
  - calculate deductions for income tax, CPP, and EI for a given gross pay
- 4.3**
- identify jobs that earn commission
  - determine gross pay for commission, piecework, and contract earnings
  - describe the advantages and disadvantages for different methods of earning income

If you are unsure about any of these questions, review the appropriate section or sections of this chapter.

#### 4.1 Wages and Salary pages 174–185

1. a) A worker earns \$13.60/h and works 35 hours this week. What is her gross weekly pay?
  - b) Mark's hourly wage is \$19.25. He worked 40 hours this week. What is his gross pay for this week?
  - c) Danielle's gross weekly pay last week was \$675. If her hourly wage is \$22.50/h, how many hours did she work last week?
2. Naomi is a waitress at the Harbourview Hotel. She earns \$10.00/h plus tips. Last week, she earned \$345.00 in tips working the following schedule.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
5:00 p.m. – 11:00 p.m.	5:00 p.m. – 12:00 p.m.	Day off	5:00 p.m. – 11:00 p.m.	5:00 p.m. – 1:00 a.m.	4:00 p.m. – 1:00 a.m.	Day off

What were her gross weekly earnings for last week?

3. Nathaniel is a swamper for a trucking company. His hourly wage is \$23.00/h. He receives time-and-a-half for overtime hours worked over 40 hours per week. What is his gross weekly pay for a 48-hour week?
4. Christina receives double time for working over 40 hours in a week. Her regular hourly wage is \$12/h. How much would she earn for working 45.5 hours this week?
5. Maxwell earns a monthly salary of \$1540. He is paid bi-weekly. How much is each pay in a
  - a) 2-pay month?
  - b) 3-pay month?
  - c) How would the amount of each pay change if he is paid semi-monthly?



#### Tools of the Trade

A swamper is a helper on a boom truck (a small crane) or a winch truck (a truck similar to a tow truck). To learn more about this job, go to [www.mhrmathatwork10.ca](http://www.mhrmathatwork10.ca) and follow the links.

### 4.2 Net Pay, pages 186–197

6. Calculate the missing information in the table.

Gross Pay	Deductions	Net Pay
\$896.30	\$215.11	A
\$1438.06	B	\$1150.45
C	\$133.08	\$471.82

7. Complete the pay stub by determining the missing amount for each letter.

Earnings				Deductions	
Description	Hours	Rate	Amount	Description	Amount
Regular Hours	40.0	18.00	A	Income Tax	292.15
Double Time	10.5	36.00	B	EI	22.26
Overtime	7.0	27.00	C	CPP	63.70
Vacation Pay			51.50	Union Dues	40.00
<b>Total Gross Pay</b>			<b>D</b>	<b>Total Deductions</b>	<b>E</b>

# 4

## Skill Check

8. The income tax rate is 22.7%. Calculate the total income tax deduction for the following gross pays.
  - a) \$724.00
  - b) \$3985.00
  - c) \$29 474.00
9. The CPP rate is 4.95%, and the EI rate is 1.73%. Calculate the CPP and EI deductions for the gross pays in #8.
10. Calculate the total deductions and net pay for #8 and #9.

### 4.3 Other Forms of Income, pages 198–209

11. Calculate each person's earnings.
  - a) A realtor earns 3.5% commission on a home sale of \$266 750.
  - b) Justine earns 8% commission on sales of \$9010.
  - c) Carl, a car salesperson, earns 2% commission on a car that sells for \$8000.
12. Caitlin is considering a job selling life insurance policies.
  - a) Provincial Life Insurance Company offers commission of 11%. A salesperson at the company usually sells \$12 600 of life insurance each week. What would Caitlin's typical gross weekly pay be?
  - b) McMaster Insurance offers a fixed salary of \$500 per week, plus a commission of 6%. A salesperson at the company usually sells \$12 600 of life insurance each week. What would Caitlin's typical gross weekly pay be?
  - c) Which job would you suggest Caitlin accept? Explain your thoughts.

- 13.** Brent has been hired to trim 300 overgrown hedges in his city.

He can be paid in two ways:

Option 1: \$5.75 per hedge trimmed

Option 2: \$2000 to complete the job in 5 days

- a)** What payment method pays the most?  
**b)** Which method would you recommend Brent choose? Explain two advantages and two disadvantages of your choice.



- 14.** Amelia is a sales consultant for a mail-order jewellery company. She earns a commission on her sales of jewellery. If she sells more than \$2000 in a week, she earns a \$150 bonus. Last week, Amelia sold the following amounts.

<b>Monday</b>	\$75.00
<b>Tuesday</b>	\$350.00
<b>Wednesday</b>	\$400.00
<b>Thursday</b>	\$800.00
<b>Friday</b>	\$500.00

- a)** What were Amelia's total sales last week? Will she earn a bonus?  
**b)** What was Amelia's gross pay last week?

## 4

## Test Yourself

For #1 to # 5, select the best answer.

- Which statement is correct?
  - Net pay = hourly wage  $\times$  1.5
  - Net pay = hourly wage  $\times$  hours worked
  - Net pay = gross pay – deductions
  - Net pay = gross pay + vacation pay
- Which of the following earns the highest weekly gross pay?
  - 8% commission on sales of \$8625
  - 38 hours worked at \$18.50 per hour
  - 40 h worked at \$14.00/h, plus 5 h at time-and-a-half
  - \$2500 monthly salary
- What payment method pays the same amount each week?
 

<b>A</b> commission	<b>B</b> hourly wage
<b>C</b> salary	<b>D</b> tips
- Anne-Marie earns \$13.75/h, plus time-and-a-half for overtime hours over 40 h/week. She works 42.5 h this week. What is her gross weekly pay?
 

<b>A</b> \$500.00	<b>B</b> \$601.56	<b>C</b> \$651.50	<b>D</b> \$876.56
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- Lindsey's pay stub for this week gives the following information:
  - Gross pay: \$1259.00
  - Total income tax: \$285.79
  - CPP deduction: \$47.88
  - EI deduction: \$21.78
  - Health insurance: \$15.59
 What is her weekly net pay?
 

<b>A</b> \$887.96	<b>B</b> \$371.04
<b>C</b> \$285.79	<b>D</b> \$85.25
- Marc works in a dairy processing plant. He is paid \$16.50/h. He is paid time-and-a-half if he works more than 40 hours in a week. Marc worked 54 hours this week. What is his gross pay?



7. Dawn's weekly gross pay is \$890.65. Her weekly deductions are \$195.94.
  - a) What is her net weekly pay?
  - b) What is her net monthly pay? Assume a 4-pay month.
8. Eric sold \$12 650 worth of merchandise this week. He receives a commission of 6% on his sales. What is his gross weekly pay for this week?
9. Use the following pay stub to answer the questions below.

Earnings Statement			
Earnings	Rate	Hours	Current
Regular	\$10.90	40	
Overtime	\$29.95	8	
<b>Gross Pay</b>			<b>A</b>
Deductions			
Income Tax			<b>B</b>
CPP			<b>C</b>
EI			<b>D</b>
Union Dues			\$9.05
<b>Total Deductions</b>			<b>E</b>
<b>Net Pay</b>			<b>F</b>

- a) Calculate the gross pay (A).
  - b) Use an income tax rate of 22.7% to calculate the income tax (B).
  - c) Use a CPP rate of 4.95% and an EI rate of 1.73%. Calculate the CPP and EI deductions (C and D).
  - d) Calculate the net pay (F).
10. Roland sells heavy equipment. Which of the following would give him the largest gross pay for one week based on \$47 550 in sales?
 

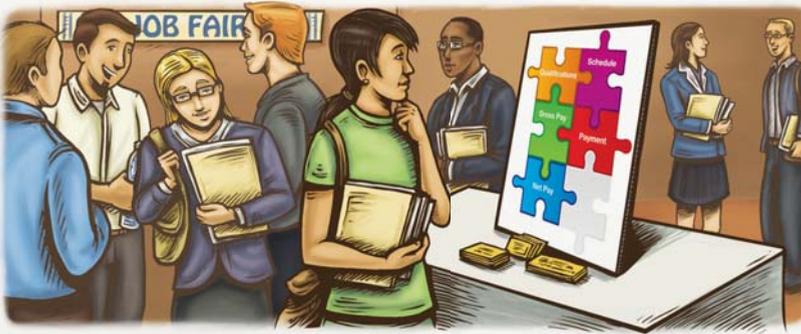
Option 1: commission of 3% on sales

Option 2: fixed salary of \$900/week plus commission of 1% on sales



### Research Your Dream Job

With the class, plan a job fair. You are responsible for researching your dream job. Look for the following information.



### F.Y.I.

A job fair or career fair is a gathering of businesses and employers who put up displays with information for people who are looking for jobs.

#### 1. Qualifications

- Training/schooling
- Experience
- Special permits or licences

#### 2. Work Schedule

- Days of the week
- Usual hours
- Number of hours/day
- Number of hours/week

#### 3. Payment Method

Does the job pay

- a salary?
- an hourly wage?
- a weekly wage?
- commission?

Do you work

- on a contract?
- by piecework?

Can you receive

- tips?
- bonuses?

#### 4. Calculate the gross pay and net pay for one month of work in your dream job.

#### 5. Put all of the pieces together in a presentation. Use a format of your choice. For example, give an oral report, use presentation software or an interactive whiteboard, shoot a video, or design posters.



# GAMES AND PUZZLES

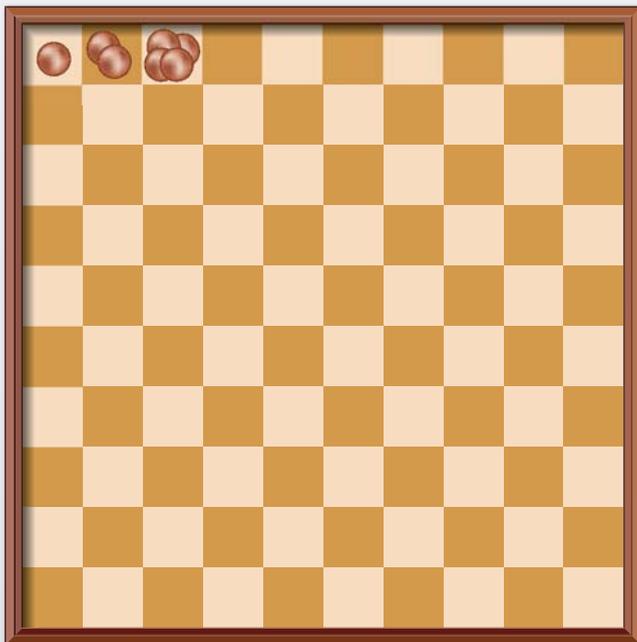
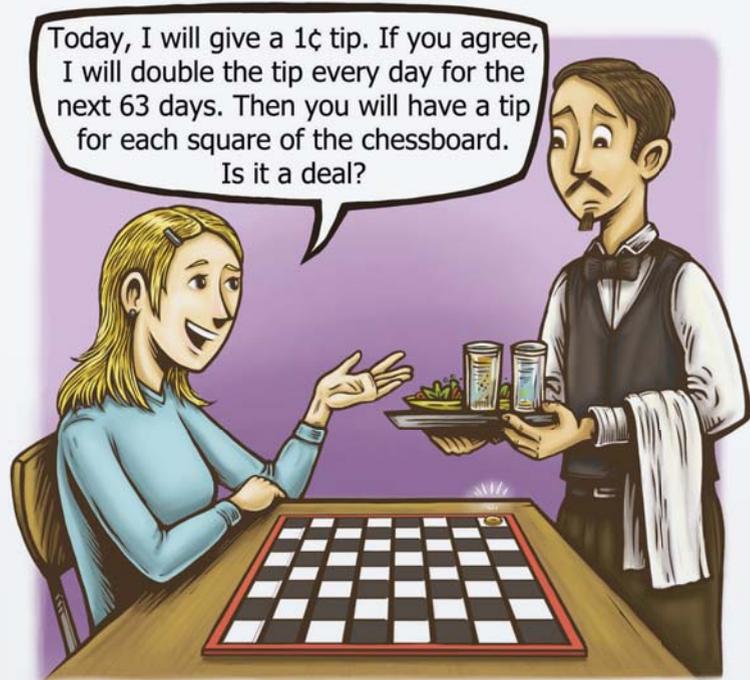
## Here's a Tip!

You work part-time as a server. One day, your favourite customer presents you with a chessboard and offers a deal.

Do you accept the customer's offer?

Before answering, consider the following:

- What tip will you get on day 8?
- What tip will you get on day 16?
- What could you buy with the tip on day 24?



What kind of pattern does this make?