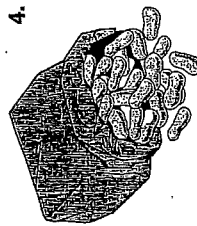


Chapter Review

- a) Name three different ways employees can be paid.
e.g., hourly wage, salary, commission

b) Which payment method allows employees to be paid overtime?
hourly wage
- Chantelle works 35 h a week at the zoo earning \$15.25/h. Her supervisor's annual salary is \$33 280. What is the difference in their weekly gross incomes?
e.g., Chantelle: 35 h x \$15.25 = \$533.75
supervisor: \$33 280 ÷ 52 = \$640
\$640 - \$533.75 = \$106.25
Chantelle makes \$106.25 less per week than her supervisor.
- Parma earns 8% straight commission on her monthly sales of beauty products. Last month she sold \$24 558 in merchandise. Lalit works in an office earning a weekly salary of \$525. Who had the higher gross income for the month?
e.g., Parma: 8% x \$24 558 = \$1964.64
Lalit: about \$525 x 4 = \$2100
Lalit had the higher gross income for the month.
- Rhonda sells peanuts at BC Lions football games. She earns \$30 per game plus 15¢ for each bag she sells. She averages about 350 bags sold per game. How much will she earn over the 8 games she works during the season?
e.g., \$30/game x 8 games = \$240
\$0.15/bag x 350 bags/game x 8 games = \$420
\$240 + \$420 = \$660
Rhonda will earn \$660 for the season.



Alex works at a variety store earning \$10.30/h. He usually works 40 h per week. Last week he worked an extra 8 h shift and earned time and a half. What was Alex's gross income for the week?

e.g., $\$10.30/h \times 40 h + \$10.30/h \times 1.5 \times 8 h = \535.60

Alex's gross income was \$535.60 for the week.

Marissa works 40 h a week earning \$12.35/h. Her deductions are shown. Determine her total deductions and her weekly net income.

e.g., gross income: $40 h \times \$12.35/h = \494

Deductions: $\$8.54 + \$24.45 + \$74.10 + \$5.20 = \$112.29$

net income: $\$494 - \$112.29 = \$381.71$

Marissa's total deductions are \$112.29 and her net income is \$381.71.

Karl earns an annual salary of \$42 000.

a) Use the chart to determine each standard deduction.

Income tax: $\$42\ 000 \times 15\% = \6300

EI: $\$42\ 000 \times 1.73\% = \726.60

CPP: $\$42\ 000 \times 4.95\% = \2079

b) What is Karl's net weekly income?

e.g., $(\$42\ 000 - \$6300 - \$726.60 - \$2079) \div 52 = \$632.58$

Karl's net weekly income is \$632.58.

Name three other types of deductions that might be on an employee's pay cheque besides the standard government deductions.

e.g., union dues, health plan premiums, charitable donations

How are a bonus, a shift premium, and overtime the same? How are they different?

e.g., All are extra amounts an employee can earn above the

regular hourly wage or salary. A bonus is based on performance,

but shift premium and overtime are based on hours.

A bonus is a percent of the annual salary. Shift premiums and

overtime are amounts added to the hourly wage.

Deductions
EI: \$8.54
CPP: \$24.45
Income tax: \$74.10
Union dues: \$5.20

Income tax	15%
CPP	4.95%

Deductions
 EI: \$9.08
 CPP: \$25.99
 Income tax: \$78.75
 Life insurance: \$11.20

2. Gwen's gross income is \$525. Her deductions are known. Calculate her deductions and her net income.
- $\$9.08 + \$25.99 + \$78.75 + \$11.20 = \$125.02$
- $\$525 - \$125.02 = \$399.98$
- Gwen's net income is \$399.98.

3. Complete the chart.

Employee	Hourly Rate	Hours Worked	Gross Income	Deductions	Net Income
Jill	\$368.45	\$94.16	\$274.29		
Elise	\$538.09	\$125.72	\$412.37		

4. Kandice earns \$19.20/h and is paid time and a half for each hour worked over 40 h a week. Last week she worked 43 h.

a) What is Kandice's gross income?
 e.g., $\$19.20 \times 40 \text{ h} + \$19.20 \times 1.5 \times 3 \text{ h} = \854.40

b) Use the chart to determine each standard deduction.
 Kandice's gross income for the week was \$854.40.
 Income tax: $\$854.40 \times 15\% = \128.16
 EI: $\$854.40 \times 1.73\% = \14.78
 CPP: $\$854.40 \times 4.95\% = \42.29

c) Kandice also has a payroll savings plan deduction of \$20/week. What was her net income for last week?
 $\$854.40 - \$128.16 - \$14.78 - \$42.29 - \$20 = \649.17

Kandice's net income for last week was \$649.17.

5. Vee Jay works 40 hours a week. His net income is \$344.12. His deductions total \$105.88. What is his hourly rate?
 $\$344.12 + \$105.88 = \$450 \text{ gross income}$
 $\$450 \div 40 = \11.25
 Vee Jay earns \$11.25 per hour.

6. Jen is a dentist earning an annual salary of \$135 500. Each month, she pays \$2925 in income tax. What income tax rate is Jen paying?
 $\$135\,500 \div 12 = \$11\,291.67$
 $\frac{\$2\,925}{\$11\,291.67} = \frac{x}{100}$
 $x = 25.9\%$

Ten pays an income tax rate of 25.9%.

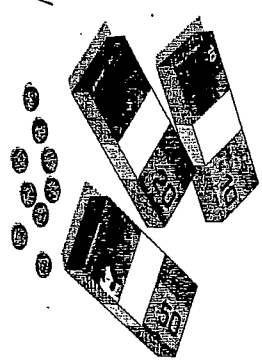


Solving a Payment Puzzle

A wealthy and generous owner of an Internet company offers two options of payment to her new vice president.

Option 1: a monthly salary of \$50 000 per month paid at the beginning of each month

Option 2: a monthly salary based on 1¢ the first day, 2¢ the second day, 4¢ the third day, 8¢ the fourth day, and so on. The monthly salary will be the amount calculated for the last day of the month.



Assume there are 30 days in the month.

A How can you calculate the vice president's earnings under Option 2?

I can use a calculator to double the number each day.

1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096, 8192, 16 384, 32 768, 65 536, 131 072, 262 144, 524 288,

1 048 576, 2 097 152, 4 194 304, 8 388 608, 16 777 216, 33 554 432, 67 108 864, 134 217 728, 268 435 456,

536 870 912

536 870 912 = \$5 368 709.12

B Compare the monthly earnings for the two options.

Option 1: \$50 000

Option 2: \$5 368 709.12

C Which payment option would you take if you were the vice president? Why?

a. I would take Option 2 because it's about 100 times as much money as Option 1.

1.8

Calculating Net Income



- i) $\$340.00 - \$36.85 = \$303.15$
- ii) $\$428.44 - \$45.21 - \$4.66 = \376.57
- iii) $\$512.55 - (\$37.88 + \$12.72 + \$5.73) = \$456.22$

Marc works for a landscaping company. Last week his gross income was \$287. His deductions totalled \$45.36. What is Marc's net income?

- 1 Subtract Marc's deductions from his gross income.
 $\$287 - \$45.36 = \$241.64$
- 2 What is Marc's net income? \$ 241.64

net income
the money left
after deductions
are taken from
gross income;
also called take-
home pay

Standard Government Deductions

Income Tax	a portion of an employee's earnings that federal and provincial governments use to provide services
Employment Insurance (EI)	a fund that provides a source of income to people who lose their jobs (through no fault of their own) while they look for a new job
Canada Pension Plan (CPP)	a government fund that provides a monthly pension to workers when they retire

Example 1

Shannon is the manager of a sporting goods store earning \$770 weekly. Calculate her standard deductions.

Solution

Income tax: 15 % of \$770 = \$ 115.50
 EI deduction: 1.73 % of \$770 = \$ 13.32
 CPP deduction: 4.95 % of \$770 = \$ 38.12

Income tax	15%
CPP	4.95%

Optional Deductions

Company Pension Plan	a fund that provides a company pension during retirement, in addition to CPP
Company Health Plan	a plan for medical expenses not covered by other government health care plans
Life Insurance	a plan that pays a sum of money to a family member or designated beneficiary in the case of an employee's death
Disability Insurance	a plan that provides a source of income when an employee is injured and unable to work
Union Dues	a deduction made when an employee belongs to a union. Unions negotiate wages, benefits, and working conditions with employers.
Payroll Savings	an option for employees to make a regular contribution to a savings plan, such as Canada Savings Bonds
Charitable Donations	an option for employees to make a regular donation to a charity

Example 2

Todd earns a weekly salary of \$635 as a computer technician. The deductions from his gross income are shown at the right. What is his net income for a week?

Deductions	
EI:	\$8.70
CPP:	\$31.43
Income tax:	\$95.25
Company pension:	\$19.55
Disability Insurance:	\$15.75

Solution

- A What are Todd's total deductions?
 $\$8.70 + \$31.43 + \$95.25 + \$19.55 + \$15.75 = \170.68
- B What is Todd's net income for a week?
 $\$635 - \$170.68 = \$464.32$

REFLECTING

What are some possible deductions that could be subtracted from Todd's salary?

Practice

- 1 Shania's monthly salary is \$5208.50, before deductions. Use the chart at the right to determine her standard deductions.
 Income tax: $\$5208.50 \times 15\% = \781.28
 EI: $\$5208.50 \times 1.73\% = \90.12
 CPP: $\$5208.50 \times 4.95\% = \257.82

Income tax	15%
CPP	4.95%

Practice

1. For 40 hours a week, 50 weeks a year, what hourly wage is equivalent to an annual salary of \$34 000?

e.g., $\$34\ 000 \div 50 \div 40 = \17
 $\$17$ per hour is equivalent to an annual salary of \$34 000.

2. Mindy is an electrician and Bridgit assembles computers.

- Mindy earns \$24.50/h and a shift premium of \$1.50/h for hours worked after 8 p.m. Last week she worked 45 h, including 5 h Tuesday night.
- Bridgit earns \$6.25 for each computer.

How many computers must Bridgit assemble in a week to match Mindy's gross income for the week?

e.g., Mindy: $40\text{ h} \times \$24.50/\text{h} + 5\text{ h} \times \$26/\text{h} = \$1110$

Bridgit: $\$1110 \div \$6.25/\text{computer} = 177.6$ computers

Bridgit would have to assemble 178 computers to match

Mindy's income for the week.

3. Suppose you would like to earn at least \$300 a week and you have two part-time job offers.

- Job A pays \$9.25/h, 35 h a week
- Job B pays \$8.10/h, 20 h a week, plus 5% commission on sales of about \$3000/week

Which job would you take? Why would you take that job?

e.g., Job A: $\$9.25/\text{h} \times 35\text{ h} = \323.75

Job B: $\$8.10/\text{h} \times 20\text{ h} + 5\% \text{ of } \$3000 = \$312$

I'd take Job A because it pays more with just a base salary and I wouldn't want my income to be based on commission.

4. The company that Lars works for installing car stereos has changed ownership. He used to earn \$12.20/h for a 40 h week. Now he is paid \$35 for each stereo he installs and he averages 15 installations a week. Does this change benefit Lars? Explain.

e.g., $\$12.20/\text{h} \times 40\text{ h} = \488

$\$35/\text{stereo} \times 15 = \525

Yes, this change benefits Lars because he earns more if he can keep doing 15 installations a week.

5. Liza is a bank teller earning an annual salary of \$35 000. Sasha works as a legal secretary and is paid \$15.40/h and double time for hours over 35 each week.

How many hours of overtime must Sasha work each week to earn as much as Liza?

e.g., Sasha: $\$15.40/\text{h} \times 35\text{ h/week} = \$539/\text{week}$

Liza: $\$35\ 000 \div 52\text{ weeks} = \$673.08/\text{week}$

Liza earns \$673.08 - \$539 = \$134.08 more than Sasha.

Sasha earns $2 \times \$15.40$ or \$30.80 for overtime hours.

$\$134 \div \$30.80/\text{h} = 4.35\text{ h}$

Sasha would have to work 4.35 hours of overtime.

6. Alice manages a big-box store and earns \$55 800 a year. This year her company met all sales targets and she will receive a bonus that is 3% of her salary.

Jeff installs heating and cooling equipment for \$21.75/h and double time for hours worked over 40 h a week. He averages 50 h each week.

Who has the higher gross annual income?

e.g., Jeff: $\$21.75/\text{h} \times 40\text{ h} + 2 \times \$21.75/\text{h} \times 10\text{ h} \times 52 = \$67\ 860$

Alice: $\$55\ 800 + 3\% \text{ of } \$55\ 800 = \$57\ 474$

Jeff has the higher gross annual income.

7. Compare the methods of earning income.

a) If you were a swimming pool installer, would you prefer to be paid by salary or piecework? Explain why.

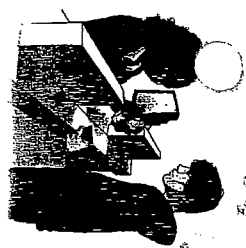
e.g., I would prefer to be paid by the number of pools I install, because I am a fast worker.

b) If you were a machine operator, would you prefer to be paid an hourly wage plus overtime or a salary? Explain why.

e.g., I would prefer an hourly wage plus overtime because the company I work for offers a lot of overtime hours.

8. Pick an occupation you are interested in. Find out the method and amount of payment.

e.g., I am interested in being an electrician. Electricians are often paid by the hour and are often paid overtime. They can make \$60 000/year or more.



Comparing Types of Income



- i) $1.5 \times 40 \times \$12.50 = \$$ 750 ii) $\$65,000 \div 52 = \$$ 1250

Paul earns \$9.40/h. Yvonne earns \$8.10/h and gets time and a half for hours worked over 40 h per week. Compare their incomes for working 50 h one week.

- 1 How much does Paul earn?
\$ 9.40 /h \times 50 h = \$ 470
- 2 How much does Yvonne earn?
\$ 8.10 /h \times 40 h + \$ 8.10 /h \times 1.5 \times 10 h = \$ 445.50
- 3 Who earns more? Paul
How much more? \$ 470 - \$ 445.50 = \$ 24.50
Paul earns \$24.50 more than Yvonne

Example 1

Sanjay is a waiter and Jon sells magazine subscriptions. Who has the higher gross annual income if they both work 50 weeks?

- Sanjay: \$8.00/h 40 h per week \$300/week in tips
- Jon: \$280/week 4% commission \$3300/week in sales

Solution

- A. How much does Sanjay earn each year from his hourly wage?
\$ 8.00 /h \times 40 h \times 50 = \$ 16,000
- B. How much does Sanjay earn each year from tips?
\$ 300 /week \times 50 weeks = \$ 15,000

REFLECTING



What are some advantages of being a waiter? How do you think you can use your skills in other jobs? How can you use your skills in other jobs?

- C. What is Sanjay's gross income for one year?
\$ 15,000 + \$ 16,000 = \$ 31,000

D. How much does Jon earn each year from his weekly salary?

\$ 280 /week \times 50 weeks = \$ 14,000

E. How much does Jon earn each year from commission?

4% of \$ 3300 \times 50 = \$ 6600

F. What is Jon's gross income for one year?

\$ 6,600 + \$ 14,000 = \$ 20,600

G. Who has the higher gross annual income?

Sanjay has the higher gross annual income.

Example 2

Jody installs and repairs telephones. She earns \$21.20/h plus time and a half for any hours she works over 40 hours a week. Last week she worked 49 hours.

Aidan earns an annual salary of \$43,000 as the director of sales at a computer company.

Who had the higher gross income last week?

Solution

A. How much did Jody earn for the first 40 h she worked?

\$ 21.20 /h \times 40 h = \$ 848.00

B. How much did Jody earn in overtime for the week?

\$ 21.20 /h \times 1.5 \times 9 h = \$ 286.20

C. What was Jody's gross income for last week?

\$ 848.00 + \$ 286.20 = \$ 1134.20

D. What was Aidan's gross income for the week?

\$ 43,000 \div 52 = \$ 826.92

E. Who had the higher gross income for the week?

Jody had the higher gross income.

REFLECTING



What are some advantages of being a waiter? How do you think you can use your skills in other jobs? How can you use your skills in other jobs?

1.6

Calculating Income: Piecework

1. Determine the gross earnings for each person.
- i) $10¢ = \$ 0.10$
 ii) $35¢ = \$ 0.35$
 iii) $\$0.18 \times 2560 = \$ 460.80$
 iv) $45¢ \times 345 = \$ 155.25$

Dominic delivers catalogues. He is paid 30¢ for each catalogue he delivers. Last night he delivered 243 catalogues. How much did Dominic earn last night?

- 1 How much does Dominic get paid per catalogue?
 $30¢ = \$ 0.30$

- 2 How much did Dominic earn last night?
 $\$ 0.30 \times 243 = \$ 72.90$

Example

Rosco sells programs at the Edmonton Oilers hockey games. He earns \$20 per game plus 23¢ for each program he sells. Last game he sold 244 programs. How much did he earn?

Solution

- A. How much does Rosco get paid per program?
 $23¢ = \$ 0.23$

- B. How much did Rosco earn in program sales?
 $\$ 0.23 \times 244 = \$ 56.12$

- C. How much did Rosco earn last game?
 $\$ 20 + \$ 56.12 = \$ 76.12$



REFLECTING

1. How do you think the average person in your class spends their money? 2. How do you think the average person in your class spends their money?

Practice

1. Determine the gross earnings for each person.

Person	Rate	Quantity	Gross Earnings
telemarketer	25¢/call	331 calls	\$ 82.75
cleaner	\$80./90m	8 hours	\$ 64.00
apple picker	\$2.25/basket	45 baskets	\$ 101.25
fruit sale	\$1.50/4lb	80 lbs	\$ 120.00

2. Kat sells T-shirts at concerts. She is paid \$25 per concert and 50¢ for each T-shirt she sells. What were Kat's gross earnings for selling 174 T-shirts at one concert?

e.g., $\$25 + \$0.50 \times 174 = \$112$

Kat earned \$112 for selling 174 T-shirts at one concert.

3. Juan prunes fruit trees. Last week he was paid \$660 for pruning 240 trees. How much was Juan paid for each tree?

e.g., $\$660 \div 240 = \2.75

Juan was paid \$2.75 for each tree.

4. Harry assembles cardboard boxes and packs them with canned soup. He averages 320 boxes per day and is paid 90¢ per box. If he works 5 days a week for 50 weeks each year, what is his gross yearly income?

e.g., $\$0.30 \times 320 \times 5 \times 50 = \$24\,000$

Harry's gross yearly income is \$24 000.

5. Jackie is paid \$2.00/basket for picking blueberries. Last year she was paid \$1.85/basket.

- a) How much will she earn this year for 135 baskets?

e.g., $\$2.00 \times 135 = \270

She will earn \$270.

- b) How much more will she earn this year than last year for 135 baskets?

e.g., $\$1.85 \times 135 = \249.75

$\$270 - \$249.75 = \$20.25$

Jackie will earn \$20.25 more this year for 135 baskets.

Practice

1. Determine the amount of commission for each person's sales.

Person	Commission Rate	Sales	Commission
Brock	5%	\$12 000	\$ 600
Maria	3%	\$29 520	\$ 885.60
Katrina	1.5%	\$24 050	\$ 360.75
Topleg	2.5%	\$11 225	\$ 280.63

2. Akheem sells contracts for wireless devices. He earns 4% straight commission on his weekly sales.

- a) Use the chart to determine Akheem's gross income for June.

Week	Commission Rate	Sales	Commission
June 1-7	4%	\$5000	\$ 200
June 8-14	4%	\$1950	\$ 78
June 15-21	4%	\$6050	\$ 242
June 22-28	4%	\$2200	\$ 88
Total			\$ 765.60

- b) How could you calculate Akheem's gross income using a different strategy?

e.g., I could add the total sales and multiply by 4%.
 $\$5\ 000 + \$4\ 850 + \$6\ 050 + \$3\ 240 = \$19\ 140$
 $\$19\ 140 \times 4\% = \765.60

3. Petra works in a shoe store earning \$285 a week plus 3% commission on her sales. Last week her sales were \$4200. What was Petra's gross income for the week?

e.g., $\$285 + 3\% \times \$4200 = \$411$

Petra's gross income for the week was \$411.

4. Art sells cars. He earns a base salary of \$450/week and 1.5% commission. What was Art's gross income last month when his total sales were \$125 950?

e.g., $\$450 \times 4 + 1.5\% \text{ of } \$125\ 950 = \$6689.25$

Art's gross income last month was \$6689.25.

5. Juanita earns \$1250 monthly selling large appliances. She also earns 2% commission on her first \$20 000 in sales and 3.5% on sales over \$20 000 each month. Her total sales for March were \$34 320. What was Juanita's gross income for the month?

e.g., $\$34\ 320 - \$20\ 000 = \$14\ 320$

$\$1\ 250 + 2\% \text{ of } \$20\ 000 + 3.5\% \text{ of } \$14\ 320 = \$2\ 151.20$

Juanita's gross income for the month was \$2 151.20.

6. Mario earns 3% straight commission. Brent earns a monthly salary of \$3400 and 1% commission on his sales. If they both sell \$245 000 worth of merchandise, who earns the higher gross monthly income?

Mario: $3\% \text{ of } \$245\ 000$ Brent: $\$3\ 400 + 1\% \text{ of } \$245\ 000$

$= \$7\ 350$ $= \$3\ 400 + \$2\ 450$

$= \$5\ 850$

Brent earns more.

7. Tamara wants to earn \$3000 next month. She earns a base salary of \$600 a month plus 3% commission on sales. How much would she have to sell to earn her target?

$\$3000 - \$600 = \$2400$

$3\% \text{ of } ? = \$2400$

$? = \$2400 \div 0.03$

$? = \$80\ 000$

Tamara would have to have \$80 000 in sales to make her target.

8. If you had a job as a salesperson, would you want to earn straight commission or a base salary plus a commission? Explain your thinking.

e.g., I would want to earn a base salary plus commission

because then I would have some income even if I was sick

or on holidays or if it was a bad time for sales.

1.5

Calculating Income: Commission

1.1) 10.35%
1.2) 10.35%

- i) 5% of \$12 200 = \$ 610 iii) 1.5% of \$9420 = \$ 141.30
 ii) 2% of \$3250 = \$ 65 iv) 2.3% of \$150 = \$ 3.45

All is a real-estate agent earning **straight commission**. His commission rate is 4% of the selling price of each home he sells. This month he sold two homes. What was his commission?

- 12 Brookfield Place \$255 000
- 246 Pine Street \$304 999

- 1 What is the total value of the homes All sold?
\$ 255 000 + \$ 304 999 = \$ 559 999
- 2 What is the amount of commission All earned?
4% of \$ 559 999 = \$ 22 399.96
All earned \$ 22 399.96 in commission this month.

Example 1

Sabrina is a salesperson at Electronics Empire earning a **base salary** of \$340/week. She also earns 1.5% commission on the total value of all the goods she sells each month. These are her sales for November:

- November 1–15 \$55 340
- November 16–30 \$75 920

What was Sabrina's gross income for November?

Solution

- A. What was Sabrina's base salary for the month?
4 weeks × \$ 340 /week = \$ 1360

straight commission payment based only on sales made

base salary payment for a given work period, such as an hour or a week, but not including additional pay

REFLECTING
Compare the salesperson's base salary to the total sales for the month. How does the commission rate affect the total sales for the month? (Hint: Write a letter to the author, Mr. Jeffrey Miller.)

- B. What was the total value of Sabrina's sales for the month?
\$ 55 340 + \$ 75 920 = \$ 131 260

- C. What was the value of Sabrina's commission for the month?
1.5% of \$ 131 260 = \$ 1 968.90

- D. What was Sabrina's total income for the month?
\$ 1 968.90 + \$ 1360 = \$ 3 328.90

Example 2

Jasmine sells clothing part time at BB's Boutique. Her monthly salary is \$950. Her commission rates are 4% on the first \$15 000 of her sales for the month and 6% commission on sales over \$15 000. Jasmine's total sales for September were \$28 200. What was Jasmine's gross income for the month?

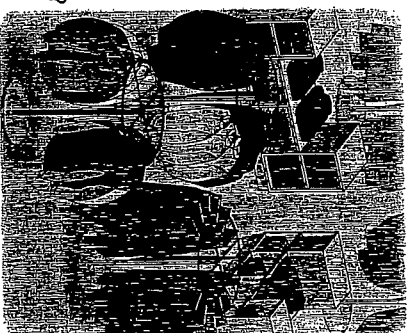
Solution

- A. What is Jasmine's base salary for the month?
\$ 950

- B. What was her commission for \$15 000 in sales?
4 % of \$15 000 = \$ 600

- C. What was her commission for sales over \$15 000?
6 % of (\$ 28 200 - \$15 000)
= 0.06 × \$ 13 200
= \$ 792

- D. What is Jasmine's total income for the month?
\$ 950 + \$ 792 + \$ 600 = \$ 2342



Mid-Chapter Review

- Name a job that might be paid in each way.
 - hourly wage e.g., customer service representative
 - salary e.g., dental hygienist
 - contract e.g., writer
 - royalty e.g., cellphone app creator
- Sarit manages a clothing boutique and has an annual salary of \$23 600. Aparna works in a shoe store and is paid \$9.80/h for 40 hours each week. Who has the higher gross income each month?

e.g., Aparna: $\$9.80/h \times 40 \text{ h} \times 4 = \1568 approx per month
 Sarit: $\$23\ 600 \div 12 = \1966.67
 Sarit's monthly gross income is higher.
- Monique is a freelance editor with a contract that will pay her \$15 500 over five months. Minaku works 160 h each month for a newspaper and earns \$17.50/h. Who has the higher gross income over this five-month period?

e.g., Minaku: $160 \text{ h} \times \$17.50/h \times 5 = \$14\ 000$
 Monique's income is higher.
- Jacques works for a deck and fence building company. He is paid an hourly wage of \$20.50. He usually works 8 h a day, 5 days a week. When he works more than 40 h in a week, he earns time and a half. What is Jacques' gross income for working 52 h in a week?

e.g., $\$20.50/h \times 40 \text{ h} + 1.5 \times \$20.50 \times 12 \text{ h} = \1189
 Jacques' gross income for 52 h is \$1189.
- Jarrold earns an annual salary of \$55 300. This year he will receive a 2% bonus. Marie earns \$440/week in wages and \$150/week in tips. Who earned more this year?

e.g., Jarrold: $102\% \text{ of } \$55\ 300 = 1.02 \times \$55\ 300 = \$56\ 406$
 Marie: $(\$440 + \$150) \times 52 = \$30\ 680$
 Jarrold earned more this year.

2. Brent has a job with the city parks department earning \$18.60/h. If he works more than 40 h in a week, he earns time and a half. What was his gross income for working 46.5 hours in one week?

e.g., $\$18.60/h \times 40 \text{ h} + (1.5 \times \$18.60) \times 6.5 \text{ h} = \925.35
 Brent's gross income for the week was \$925.35.

3. Penny earns \$28.20/h as an electrician, plus double time for any hours over 40 hours each week.

a) Complete Penny's time card.

Day	Start Time	End Time	Hours
Monday	8:00 AM	12:30 PM	9
Tuesday	7:00 AM	1:00 PM	9
Wednesday	7:55 AM	12:30 PM	10
Thursday	6:55 AM	12:01 PM	9
Friday	6:59 AM	11:30 AM	9
Sunday			

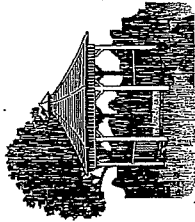
b) What is Penny's gross income for the week?

e.g., $\$28.20/h \times 40 \text{ h} + (2 \times \$28.20) \times 6.5 \text{ h} = \1494.60
 Penny's gross income for the week was \$1494.60.

4. Shelly earns \$18.50/h as a child-care worker plus time and a half for hours over 40 hours a week.

Pablo works at a hockey arena and earns \$14/h for 37.5 h worked each week and double time for hours above this. If they both work 45 h in a week, who is paid more?

e.g., Shelly: $\$18.50/h \times 40 \text{ h} + (1.5 \times \$18.50) \times 5 \text{ h} = \878.75
 Pablo: $\$14/h \times 37.5 \text{ h} + (2 \times \$14/h) \times 7.5 \text{ h} = \735
 Shelly is paid more for a 45 h week.



1.4

Calculating Income: Overtime

Multiple Choice

- i) $2 \times \$8.25 = \16.50 ii) $1.5 \times \$11.10 = \16.65

time and a half the hourly wage multiplied by a factor of 1.5

Manny works on a farm near Moose Jaw, Saskatchewan. He clocks in and out of work using a time card. He earns \$9.20/h and is also paid time and a half for any hours worked over 40 h in one week. His time card for one week is shown. What is Manny's gross income for the week?

Day	In	Out	Hours	Rate	Total	
Thursday	06:07 A	01:25 P	04:03 P	1	9.50	
Friday	06:06 A	01:27 P	04:01 P	1	9.50	
Saturday	05:58 A	11:01 A	05:00	1	5.00	
Monday	06:05 A	12:58 P	01:27 P	1	8.50	
Tuesday	06:07 A	01:25 P	04:03 P	1	9.50	
Wednesday	05:58 A	12:00 P	12:30 P	04:00 P	1	9.50
Thursday	06:07 A	01:25 P	04:03 P	1	9.50	

REFLECTING
Waiting does not count as work time. When does a break count as work time?

- How much does Manny earn for the first 40 hours he works?
 $40 \text{ h} \times \$9.20/\text{h} = \368
- What is Manny's hourly wage for overtime hours?
 $\$9.20/\text{h} \times 1.5 = \$13.80/\text{h}$
- How much does Manny earn for his overtime hours?
 $12 \text{ h} \times \$13.80/\text{h} = \165.60
- What is Manny's gross income for the week?
 $\$368 + \$165.60 = \$533.60$
Manny's gross income for the week is \$533.60

Example

Astrid works in the oil and gas industry near Fort McMurray, Alberta. She earns \$28.30/h and makes double time for hours worked beyond 40 each week. Calculate Astrid's gross income for 45.25 hours worked last week.

double time the hourly wage multiplied by 2

Solution

- How much does Astrid earn for the first 40 hours she works?
 $40 \times \$28.30/\text{h} = \1132
- How much does Astrid earn for overtime hours?
Hourly wage for overtime: $2 \times \$28.30 = \56.60
Total for overtime hours: $5.25 \text{ h} \times \$56.60/\text{h} = \297.15
- What is Astrid's gross income for the week?
 $\$1132 + \$297.15 = \$1429.15$

Practice

- Darcy earns \$22.40 per hour as a lathe operator, plus time and a half for hours worked over 40 hours each week.
 - Complete Darcy's time card.

Day	In	Out	Hours	Rate	Total
Monday	7:00 AM	11:30 AM	12:00 PM	3:30 PM	8
Tuesday	6:59 AM	11:28 AM	12:01 PM	3:32 PM	8
Wednesday	6:55 AM	11:26 AM	11:59 AM	3:29 PM	8
Thursday	6:07 AM	11:52 AM	12:03 PM	3:00 PM	8.5
Friday	6:58 AM	11:30 AM	12:01 PM	6:15 PM	10.75
Saturday	6:07 AM	11:25 AM	12:01 PM	3:00 PM	8.5
Sunday	6:07 AM	11:25 AM	12:01 PM	3:00 PM	8.5

- What was Darcy's gross income for the week?
e.g., $\$22.40/\text{h} \times 40 \text{ h} + (1.5 \times \$22.40) \times 8.5 \text{ h} = \1181.60
Darcy's gross income for the week was \$1181.60.

6. Determine the hourly wage for each day listed. Shift premiums are paid only on weekends for these jobs.

Day	Hourly Wage	Shift Premium	Total Hourly Wage
Saturday	\$0.55/h	\$ 9.80	\$ 10.35
Sunday	\$2.00/h	\$ 23.25	\$ 25.25
Monday	\$9.25/h	\$ 0.00	\$ 9.25
Tuesday	\$12.25/h	\$ 0.00	\$ 12.25
Wednesday	\$15.25/h	\$ 0.00	\$ 15.25
Thursday	\$18.25/h	\$ 0.00	\$ 18.25
Friday	\$21.25/h	\$ 0.00	\$ 21.25
Saturday	\$24.25/h	\$ 0.00	\$ 24.25
Sunday	\$27.25/h	\$ 0.00	\$ 27.25

7. Bonnie earns \$28.50/h as a welder plus a shift premium of \$1.75 for working on weekends. A summary of her hours is shown. What was Bonnie's gross income for the week?

Bonnie's Hours	Hours
Mon.	8
Tue.	8
Wed.	8
Thu.	8
Fri.	8
Sat.	8
Sun.	0

Total weekday hours: 40 Rate: $\$28.50/h$
 Total weekend hours: 12 Rate: $\$28.50 + \$1.75 = \$30.25$
 $40 \times \$28.50 = \1140
 $12 \times \$30.25 = \363
 Bonnie's gross income for the week was $\$1503$.

8. Harli works for a hair salon earning \$12.45/h. Last week she worked 40 h.

Marco is a bricklayer earning \$15.80/h plus a shift premium of \$1.10/h for working evenings. Marco also worked 40 h last week, but 8 of these were in the evening.

a) Calculate each worker's gross income.
 Harli: $\$12.45/h \times 40 h$ Marco: $\$15.80/h \times 32 h = \505.60
 $= \$498$ $\$16.90/h \times 8 h = \135.20
 Total $\$640.80$

b) Who earned more and by how much?
 $\$640.80 - \$498 = \$142.80$ Marco earned $\$142.80$ more.

9. Borys earns \$55 000/year as a teacher. Jarrod is a plumber earning \$28.50/h.

If Jarrod works 40 h each week for 50 weeks each year, who has the higher gross income for the year and by how much?
 Jarrod: $\$28.50/h \times 40 h \times 50 = \$57 000$
 Jarrod's income is higher by $\$2000$.

10. Every province in Canada has a minimum hourly wage that employers must pay their workers.

a) What is the current minimum wage in your province or territory? \$ e.g., 9.25 per hour

b) if you had a part-time job and worked for 24 hours in a week, what would your gross income be for a week if you were paid the minimum wage?

e.g., $\$9.25 \times 24 = \222
 My gross income for a week would be $\$222$.

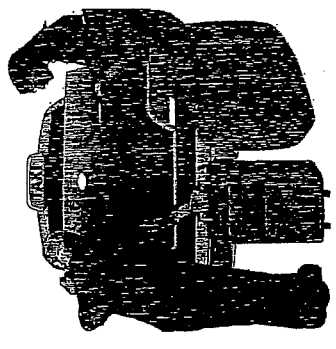
Hint
 Use the internet to find out the current minimum wage in Yukon.

11. Abbygail works 37.5 hours per week in Dawson City, Yukon, for minimum wage. What is her weekly gross income?

e.g., $37.5 h \times \$8.89/h = \333.38
 Abbygail's weekly gross income is $\$333.38$.

12. Vince earns \$12.25/h as a taxi driver working an average of 50 h each week. He usually earns \$90 in tips each week and works 50 weeks each year. What is Vince's gross annual income?

$\$12.25/h \times 50 h + \$90 = \$702.50$
 $\$702.50 \times 50 = \$35 125$
 Vince's gross annual income is $\$35 125$.



13. Star works part time as a waitress. She earns \$10/h and makes \$50 in tips each week. If she works 20 h each week, how many weeks will it take her to earn \$30000?

e.g., $\$10/h \times 20 h = \200
 $\$200 + \$50 = \$250$ each week
 $\$30000 \div \$250 = 12$ weeks
 It will take Star 12 weeks to earn $\$30000$.

Calculating Income: Hourly Wage

Check Your Work

i) $8.50 \times 40 = \$ 340$ iii) $25 \times \$9.75 = \$ 244.75$
 ii) $10.25 \times 28 = \$ 287$ iv) $37.5 \times \$16 = \$ 600$

Rachelle earns \$12.45 per hour as a cashier at a grocery store. Last week she worked 35 hours.

1. What was Rachelle's gross income for the week?
 $35 \text{ h} \times \$ 12.45 / \text{h} = \$ 435.75$
 Rachelle's gross income was \$ 435.75.

Example

Denzel works at a tire manufacturing plant and earns \$10.20/h on day shift. When he works the evening or night shift, he earns a shift premium of \$1.15/h. Last month he worked 80 h on day shift, 40 h on evenings, and 40 h on nights. What was his gross income for the month?

shift premium
 an additional amount of money for working outside of regular workday hours or on weekends

- Solution**
 A. How much did Denzel earn on day shift last month?
 $80 \text{ h} \times \$10.20/\text{h} = \$ 816$

- B. What is Denzel's hourly wage on the evening or night shift?
 $\$10.20/\text{h} + \$ 1.15 / \text{h} = \$ 11.35 / \text{h}$

- C. How much did Denzel earn on the evening and night shifts last month?
 $\$ 11.35 / \text{h} \times 80 \text{ h} = \$ 908$

- D. What was Denzel's gross income for the month?
 $\$ 816 + \$ 908 = \$ 1724$

Denzel's total income was \$ 1724.

REFLECTING
 Why do you think companies pay a shift premium?
 Why do you think workers work on weekends?

Practice

1. Complete the chart.

Job	Hourly Wage	Hours Worked	Gross Income
landscaper	\$9.85/h	40	\$ 394
dog groomer	\$11.25/h	20	\$ 225
security guard	\$15.90/h	12	\$ 190.80

2. Calculate.

- a) $\$725 \div 35 = \$ 20.71$ c) $\$698 \div 37.5 = \$ 18.61$
 b) $\$438 \div 30 = \$ 14.60$ d) $\$998 \div 42.5 = \$ 23.48$

3. Complete the chart.

Job	Hourly Wage	Hours Worked	Gross Income
painter	\$ 10.75	50	\$537.50
dishwasher	\$ 9.15	27	\$247.05
postage clerk	\$ 10.75	25	\$268.75

4. Aniela works at a library and earns \$15.75/h. Hannah works at a sporting goods store and earns \$10.45/h. Last week Aniela worked for 30 hours and Hannah worked for 35. Who had the higher gross income for the week?
 Aniela: $\$15.75/\text{h} \times 30 \text{ h} = \472.50 Hannah: $\$10.45/\text{h} \times 35 \text{ h} = \365.75

Aniela had the higher gross income.

5. Cory earns \$9.90 per hour. After three months he will get a \$0.75 raise. What will his new hourly rate be?
 $\$9.90 + \$0.75 = \$10.65$
 Cory's new hourly rate will be \$10.65.

3. Sunny is a junior graphic designer. Last year she earned the following amounts from three different contracts: \$12 850, \$15 000, and \$13 200. What was her gross income?
- $\$12\ 850 + \$15\ 000 + \$13\ 200 = \$41\ 050$
- Sunny's gross income was $\$41\ 050$.

4. Complete the chart. Round your answers to two decimal places if necessary.

Bart	\$ 27 000	\$2250	\$ 519.23
Nadia	\$ 35 200	\$2833	\$ 77.45
Phal	\$ 22 380	\$1885	\$ 430.38

hint
Determine the annual salary first. Then use this answer to determine the monthly and weekly earnings.

5. Calculate.
- a) 2% of 36 000 = 720 c) 102% of 36 000 = 36 720
 b) 8.5% of 4200 = 357 d) 104% of 34 450 = 35 828
6. Lang is an accountant in Vancouver with an annual salary of \$68 200. He gets a 2.4% bonus if his firm does well. What is the maximum gross income Lang can earn?
- $\$68\ 200 \times 2.4\% = \$1\ 636.80$
 $\$68\ 200 + \$1\ 636.80 = \$69\ 836.80$
- The maximum gross income Lang can earn is $\$69\ 836.80$.

7. Determine the amount of each bonus and the gross income.

publisher	\$63 400	3	\$ 1 902	\$ 65 302
warehouse worker	\$39 200	1.5	\$ 588	\$ 39 788
legal secretary	\$45 800	2	\$ 916	\$ 46 716

8. Jhamil is a software developer in Red Deer, Alberta. Last year her gross income was \$58 300 from four different contracts. Three of these paid \$8 300, \$12 750, and \$22 400. What was the value of the fourth contract?
- $\$58\ 300 - (\$8\ 300 + \$12\ 750 + \$22\ 400) = \$14\ 850$
- The value of Jhamil's fourth contract was $\$14\ 850$.

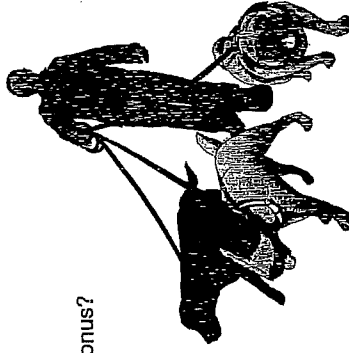
9. Which is greater?
- a) an annual salary of \$48 000 or an annual salary of \$46 500 plus a 1% bonus?
 $\$46\ 500 + 1\%$ of $\$46\ 500 = \$46\ 965$
 The \$48 000 salary is greater.
- b) a one-year contract for \$72 500 or an annual salary based on \$1550 per week?
 $\$1\ 550 \times 52 = \$80\ 600$
 The annual salary based on \$1550 per week is greater.

10. Matthew has a part-time job that pays \$358 per week. He wants to get another job so that he will earn \$28 000 per year. How much does he need to earn at his other job?
- $\$358 \times 52 = \$18\ 616$
 $\$28\ 000 - \$18\ 616 = \$9\ 384$ $\$9384 \div 52 = \180.50
 Matthew needs to earn \$9384/year or \$180.50/week.

11. Ben is a human resources assistant in Saskatoon, Saskatchewan. Last year his salary was \$48 000, and his gross income was \$49 400.

- a) Calculate Ben's bonus.
 $\$49\ 400 - \$48\ 000 = \$1\ 400$
 Ben's bonus was \$1400.
- b) What percentage of Ben's salary was his bonus?
 $\frac{\$1\ 400}{\$48\ 000} \times 100 = 2.916\%$
 Ben's bonus was 2.9% of his salary.

12. Darla earns \$50 every two weeks delivering newspapers. Chris earns \$50 twice a month walking dogs. Who earns more per year?
- Darla: $\$50 \times 26 = \1300
 Chris: $\$50 \times 24 = \1200
 Darla earns \$100 more than Chris in one year.



12

Salaries and Contracts

$$\begin{aligned}
 & \text{1) } 3\% \text{ of } \$40\,000 & \text{2) } 5.5\% \text{ of } \$78\,525 \\
 & = 0.03 \times \$40\,000 & = 0.055 \times \$78\,525 \\
 & = \$1\,200 & = \$4\,318.88
 \end{aligned}$$

Nellie is the head chef at a restaurant. Her annual salary is \$56 000.

- 1** How much does Nellie earn each month?
There are 12 months in a year.
 $\$56\,000 \div 12 = \$4\,666.67$ each month

- 2** How much does Nellie earn each week?
There are about 52 weeks in a year.
 $\$56\,000 \div 52 = \$1\,076.92$ each week

Hint
The sign = means "approximately equal to."

Gross Income
the total amount of money earned in a pay period before any deductions

Example 1
Sarah designs houses. She is paid by contract from each builder. This year she earned \$25 000, \$15 200, \$19 750, and \$31 800 on four contracts. What is her **gross income**?

Solution

- A.** What is the sum of the amounts earned on the contracts?
 $\$25\,000 + \$15\,200 + \$19\,750 + \$31\,800 = \$91\,750$
- B.** What is Sarah's gross income?
Sarah's gross income is \$ 91 750

Example 2

Azif is a project manager for a publishing company. His yearly salary is \$65 000. This year he will also get a **bonus** that is 2% of his salary. What is Azif's gross income?

Solution 1

- A.** How much is Azif's bonus?
 $2\% \text{ of } \$65\,000 = 0.02 \times \$65\,000 = \$1\,300$
- B.** What is Azif's gross income, including the bonus?
 $\$65\,000 + \$1\,300 = \$66\,300$

Solution 2

- A.** What is the total percentage of the salary Azif earns, including his bonus?
 $100\% + 2\% = 102\%$
- B.** Azif's gross income is 102% % of \$65 000.
 $102\% \times \$65\,000 = \$66\,300$
Azif's gross income is \$ 66 300.

Practice

- 1.** Complete the chart. Round your answers to two decimal places.

NAME	ANNUAL SALARY	MONTHLY EARNINGS	WEEKLY EARNINGS
Andre	\$32 000	\$ 2 666.67	\$ 615.38
Heliko	\$41 200	\$ 3 433.33	\$ 792.31

- 2.** Use mental math.

- a) What is the annual salary for monthly earnings of \$5100?
\$61 200
- b) What is the annual salary for weekly earnings of \$500?
\$26 000

bonus
an additional payment to a worker as a reward for meeting company goals

REFLECTING
Do you prefer the Solutions Manual or the Solutions Manual VHS?

Note
Sample answers for Reflecting questions are provided at the back of this Solutions edition.

Identifying Ways of Earning Income



Use mental math to calculate.

- i) $\$500 + \$750 + \$1200 + \$250 = \$ 2700$
- ii) $\$10\ 000 + \$12\ 150 + \$3\ 820 = \$ 25\ 970$

income
money received
for work

People who work earn income in different ways. The way they are paid depends on the type of job they have.

Ways of Earning Income

hourly wage	a fixed payment for each hour of work Examples: store clerk, fast-food restaurant worker
wage and tips	an hourly wage plus varying amounts in tips for services provided Examples: taxi driver, hotel worker
salary	a regular fixed payment for work, usually expressed as an amount per year but paid regularly (e.g., every two weeks or monthly) Examples: firefighter, teacher
commission	a payment based on a percentage of the worker's sales Examples: real estate agent, car salesperson
royalty	a payment for a piece of work that is marketed and sold. The amount is based on a percentage of sales Examples: author, musician
piecework	a payment based on the number of items created or completed Examples: sewing machine operator, cable TV installer
contract	a payment for a fixed period of time and/or a fixed amount of money Examples: electrical contractor, editor

Practice

1. Match each job with the payment method.

Job	Payment Method
video store clerk	salary
police officer	piecework
screenplay writer	hourly wage
tour guide	royalty
fruit picker	hourly wage and tips
furniture salesperson	contract
landscape architect	commission

2. Identify the way each worker below might be paid. Explain how you know.

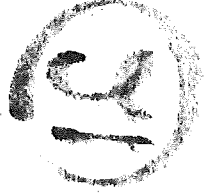
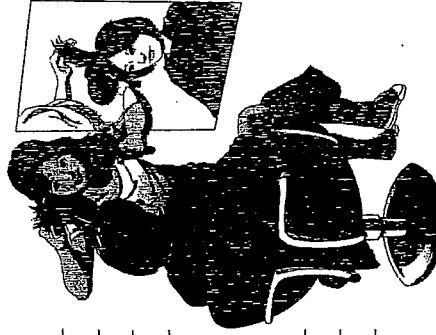
- a) assembly line auto worker e.g., hourly wage; my uncle works at a plant where all line workers are paid by the hour
- b) motorcycle and ATV salesperson e.g., commission; sales usually have some part of income that is commission
- c) recording artist e.g., royalties; a musician records a piece of music and then gets paid a percentage of sales

3. List three jobs that might be paid each way. Research some ideas.

- a) wage and tips e.g., coat check clerk, waiter, newspaper carrier
- b) contract e.g., consultant, house builder, website designer

4. List three jobs you might be interested in. For each job, identify the way you might be paid.

- e.g., hairstylist: piecework and tips
- book sales: salary plus commission
- lighting technician: hourly wage



Getting Started

1. Write each fraction as a decimal.

a) $\frac{5}{100} = 0.05$ c) $\frac{75}{100} = 0.75$
 b) $\frac{17}{100} = 0.17$ d) $\frac{6}{10} = 0.6$

2. Write each percent as a decimal.

a) $5\% = \frac{5}{100} = 0.05$ d) $20\% = \frac{20}{100} = 0.2$
 b) $10\% = \frac{10}{100} = 0.1$ e) $21.5\% = 0.215$
 c) $15\% = \frac{15}{100} = 0.15$ f) $3.25\% = 0.0325$

Hint
A percent is a fraction out of 100.

3. Calculate each percent:

a) 4% of 500
 $= 0.04 \times 500$
 $= 20$
 b) 12% of 750
 $= 0.12 \times 750$
 $= 90$
 c) 3.5% of 800
 $= 0.035 \times 800$
 $= 28$
 d) 2.25% of 600
 $= 0.0225 \times 600$
 $= 13.5$

Hint
In these calculations, "of" means multiply.

Tech Tip

Percent of a Number

Calculate 5% of 420. If your calculator has a $\frac{\square}{\square}$ key, enter

420 $\frac{\square}{\square}$ 5 \square or 420 $\frac{\square}{\square}$ 5 \square

If your calculator does not have a $\frac{\square}{\square}$ key, enter

420 \square .05 \square or 420 \square 5 \square 100 \square

4. Calculate each percent.

a) 6% of 80 = 4.8
 b) 12% of 584 = 70.08
 c) 8.5% of 620 = 52.7
 d) $2\frac{1}{2}\%$ of 3450 = 86.25

5. Write each decimal as a fraction.

a) $0.25 = \frac{25}{100}$, or $\frac{1}{4}$ c) $0.80 = \frac{80}{100}$, or $\frac{4}{5}$
 b) $0.75 = \frac{75}{100}$, or $\frac{3}{4}$ d) $0.08 = \frac{8}{100}$, or $\frac{2}{25}$

6. Write each length of time in hours and minutes.

a) 8.5 hours = 8 h 30 min
 b) 24.75 hours = 24 h 45 min
 c) 17.25 hours = 17 h 15 min
 d) 40.3 hours = 40 h 18 min

7. Write each length of time as a decimal in hours.

a) 12 h 30 min = 12.5 h c) 36 h 45 min = 36.75 h
 b) 9 h 15 min = 9.25 h d) 45 h 20 min = 45.33 h

8. What is the total number of hours?

a) 8 h a day, 5 days a week for 50 weeks: 2000 h
 b) 7.5 h a day, 6 days a week for 52 weeks: 2340 h
 c) 42 h a week for 2 years: 4368 h
 d) 120 h a month for 5 years: 7200 h

9. What is double the value of each number?

a) $12 \times 2 = 24$ c) $14.25 \times 2 = 28.50$
 b) $13.5 \times 2 = 27.0$ d) $11.8 \times 2 = 23.6$

10. Determine each value multiplied by a factor of 1.5.

a) $10 \times 1.5 = 15.0$ c) $14.5 \times 1.5 = 21.75$
 b) $15 \times 1.5 = 22.5$ d) $13.4 \times 1.5 = 20.10$

11. Calculate.

a) $5.67 + 3.39 = 9.06$ c) $4.7 \times 5 = 23.5$
 b) $12.66 - 4.38 = 8.28$ d) $40 \div 0.2 = 200$

