Simple Interest:

$$I = Prt$$

I = Interest

P = Principal

r = interest rate (decimal)

t = time in years

Compound Interest:

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

A = Final amount (Interest + Principal)

P = Principal

r = interest rate (decimal)

n = number of compounds.

t = time in years

Betty-Ann's bank offers a simple interst rate of 4% per annum. How much interest would Betty-Ann earn on her investment of $4000 after 8 months?

Given:

$P = \$4000.00$

$r = 4\%$

$r = 0.04$

$t = \frac{8}{12}$

$I = Prt$

$I = (4000)(0.04)\left(\frac{8}{12}\right)$

$I = \frac{1280}{12}$

$I = \$106.67$

The interest earned on a deposit is $25 with an interest rate is 6% per annum. If the money was invested for 2 years, what is the principal?

Given:

$I = \$25.00$

$r = 6\%$

$r = 0.06$

$t = 2$ yrs

$P = ?$

$I = Prt$

$25 = P(0.06)(2)$

$\frac{25}{0.12} = \frac{P(0.12)}{0.12}$

$\$208.33 = P$

Terminology Tango

	# of compounds per year
annualy →	1
semi-annually →	2
quarterly →	4
monthly →	12
semi-monthly →	24
bi-weekly →	26
weekly →	52
daily →	365

Calculate the final value of an initial investment of $6000.00. Interest is paid at 4% per annum, compounded semi-annually, for three years.

$A = ?$

$P = 6000.00$

$r = 4\%$

$r = 0.04$

$n = 2$

$t = 3$

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$A = 6000\left(1 + \frac{0.04}{2}\right)^{(2)(3)}$$

$$A = 6000\left(1 + 0.02\right)^{6}$$

$$A = 6000\left(1.02\right)^{6}$$

$$A = 6000(1.126162419)$$

$$A = \$6756.97$$

Calculate the final value of an initial investment of $8500.00. Interest is paid at 3.75% per annum, compounded semi-annually, for three years.

Given:

$A = ?$

$P = 8500$

$r = 0.0375$

$n = 2$

$t = 3$

y^x or x^y or $\wedge$

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$A = 8500\left(1 + \frac{0.0375}{2}\right)^{(2)(3)}$$

$$A = 8500(1 + 0.01875)^6$$

$$A = 8500(1.01875)^6$$

$$A = 8500(1.117907141)$$

$$A = \$9502.21$$

How much Interest did they earn?

$$I = A - P$$

$$I = \$9502.21 - 8500.00$$

$$I = \$1002.21$$

Credit Card Statement

Minimum payment is 5% or $10.00, whichever is greater

Send Payment To:
PO Box 555
Anytown, US

Account Number	Name	Statement Date	Payment Due Date
1234 567 8901	Suzy Student	1/15/2005	2/14/2005

Credit Line	Credit Available	New Balance	Minimum Payment Due
$1500.00	679.43	820.57	10.00

Reference	Sold	Posted	Activity Since Last Statement		Amount
89XB773		12/12	~~Payment Thank You~~		(258.00)
78XY667	12/20	12/22	Gas 'n' Go	SmallTown US	35.24
34XP889	12/23	12/26	Gift Attic	Whoville US	63.02
23XY001	12/26	12/28	Computer Monitor	Techville US	697.78
76X0E11	1/8	1/10	Pizza Palace	SmallTown US	24.53

4 purchases 820.57

~~Previous Balance~~	(+)	258.00
Purchases	(+)	820.57
Cash Advances	(+)	0.00
Payments	(-)	258.00
Credits	(-)	0.00
Finance Charges	(+)	0.00
Late Charges	(+)	0.00
NEW BALANCE	(=)	820.57

Current Amount Due	820.57
Amount Past Due	
Amount Over Credit Line	
Minimum Payment Due	10.00

FINANCE CHARGE SUMMARY	PURCHASES	ADVANCES
Annual Percentage Rate	36 %	36 %

For Customer Service Call: 1-800-555-5555
For Lost or Stolen Cards, Call: 1-888-555-5555

a) What was the previous balance? $258.00

b) What interest rate is charged on this credit card? 36%

c) Was there a payment made by the credit card holder? Yes ($258)

d) How many purchases were made this month? 4 → $820.57

e) What should the minimum payment be and when is it due?

$0 \times 0.05 = \$0.00$ or $10.00 February 14 2005

f) How much interest will this customer have to pay?

previous balance was paid in full

$I = Prt$

$I = (0)(0.36)\left(\frac{30}{365}\right)$

$I = 0.00$

Available Credit = Credit Limit − New Balance

$= \$1500.00 - \$820.57$

$= \$679.43$

Troy borrows $5620.00 to purchase a four wheeler. He takes out personal loan from his credit union at an annual rate of 5% with an amortization period of 5 years. Use the personal loan payment calculator table (page 132) to answer the questions.

PERSONAL LOAN PAYMENT CALCULATOR: MONTHLY PAYMENT PER $1000.00 BORROWED (INTEREST COMPOUNDED MONTHLY)

Interest rate (%)	Term in years				
	1	2	3	4	5
3.00	84.69	42.98	29.08	22.13	17.97
3.25	84.81	43.09	29.19	22.24	18.08
5.00	85.61	43.87	29.97	23.03	18.87
5.25	85.72	43.98	30.08	23.14	18.99
5.50	85.84	44.10	30.20	23.26	19.10
5.75	85.95	44.21	30.31	23.37	19.22
6.00	86.07	44.32	30.42	23.49	19.33
6.25	86.18	44.43	30.54	23.60	19.45
6.50	86.30	44.55	30.65	23.71	19.57
6.75	86.41	44.66	30.76	23.83	19.68
7.00	86.53	44.77	30.88	23.95	19.80

a) What is Troy's monthly payment?

(i) $5620.00 / 1000.00 = 5.62

(ii) 18.87 × 5.62 = $106.05/month

b) Calculate the total amount he will pay over the 5 years. 5 × 12 = 60 months

$106.05 × 60 = $6363.00

c) Calculate the finance charge on the loan.

$6363.00 − $5620.00 = $743.00

- Calculate cost after tax
- Subtract down payment

John is purchasing a new car which costs $42,000.00. He has a down payment of $5000.00. He takes out a personal loan from his local bank at an annual rate of 5.75% and an amortization period of 4 years. (Use 15% HST)

- $42000 \times 1.15 = 48300$
- $48300 - 5000 = 43300$

He needs to borrow 43300.00

PERSONAL LOAN PAYMENT CALCULATOR: MONTHLY PAYMENT PER $1000.00 BORROWED (INTEREST COMPOUNDED MONTHLY)

Interest rate (%)	Term in years				
	1	2	3	4	5
3.00	84.69	42.98	29.08	22.13	17.97
3.25	84.81	43.09	29.19	22.24	18.08
5.00	85.61	43.87	29.97	23.03	18.87
5.25	85.72	43.98	30.08	23.14	18.99
5.50	85.84	44.10	30.20	23.26	19.10
5.75	85.95	44.21	30.31	23.37	19.22
6.00	86.07	44.32	30.42	23.49	19.33
6.25	86.18	44.43	30.54	23.60	19.45
6.50	86.30	44.55	30.65	23.71	19.57
6.75	86.41	44.66	30.76	23.83	19.68
7.00	86.53	44.77	30.88	23.95	19.80

a) What is John's monthly payment?

(i) $\frac{43300}{1000} = 43.3$

(ii) $23.37 \times 43.3 = \$1011.92/\text{month}$

b) Calculate the total amount he will pay over the 4 years. $4 \times 12 = 48$ months

$\$1011.92 \times 48 = \$48572.16$

c) Calculate the finance charge on the loan.

$\$48572.16 - \$43300 = \$5272.16$

- Subtract the trade in
- Calculate the cost after tax

Jack is purchasing a new trailer which costs $36 000.00. He is trading in his old trailer which they valued at $15 000.00. He takes out a personal loan from his local bank at an annual rate of 5.25% and an amortization period of 5 years. (Use 15% HST)

PERSONAL LOAN PAYMENT CALCULATOR: MONTHLY PAYMENT PER $1000.00 BORROWED (INTEREST COMPOUNDED MONTHLY)

Interest rate (%)	*Term in years*				
	1	*2*	*3*	*4*	*5*
3.00	84.69	42.98	29.08	22.13	17.97
3.25	84.81	43.09	29.19	22.24	18.08
5.00	85.61	43.87	29.97	23.03	18.87
5.25	85.72	43.98	30.08	23.14	18.99
5.50	85.84	44.10	30.20	23.26	19.10
5.75	85.95	44.21	30.31	23.37	19.22
6.00	86.07	44.32	30.42	23.49	19.33
6.25	86.18	44.43	30.54	23.60	19.45
6.50	86.30	44.55	30.65	23.71	19.57
6.75	86.41	44.66	30.76	23.83	19.68
7.00	86.53	44.77	30.88	23.95	19.80

- $36000.00 - 15000.00 = 21000.00$
- $21000 \times 1.15 = 24150.00$

He needs to borrow $24150.00

a) What is Jack's monthly payment?

(i) $\frac{24150.00}{1000.00} = 24.15$

(ii) $18.99 \times 24.15 = \$458.61$/month

b) Calculate the total amount he will pay over the 5 years. $5 \times 12 = 60$ months

$\$458.61 \times 60 = \$27516.60$

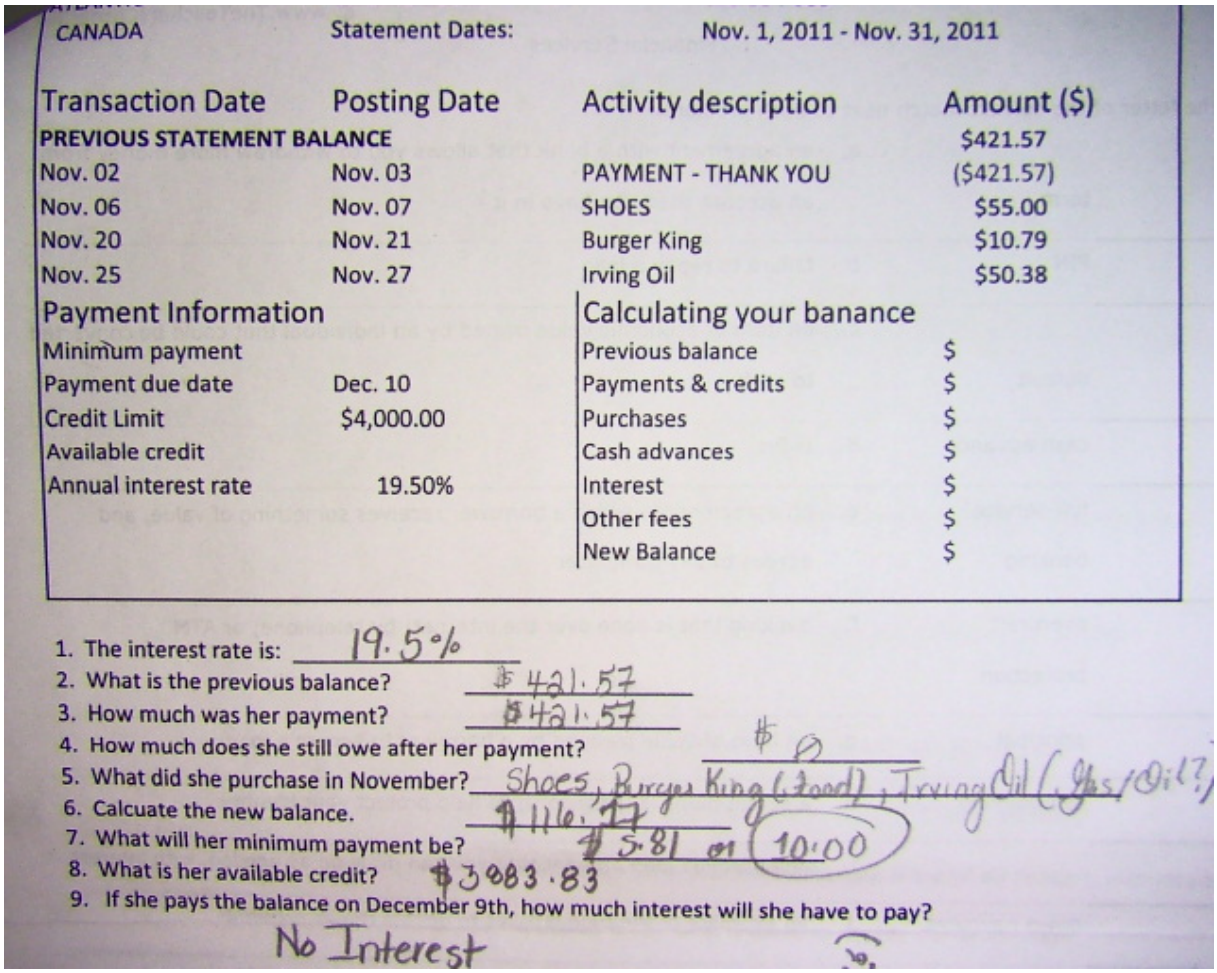
c) Calculate the finance charge on the loan.

$\$27516.60 - \$24150 = \$3366.60$

Write the letter of the correct match next to each problem.

1.	q	term	a.	an agreement with a bank that allows you to withdraw more money from an account than you have in it
2.	h	PIN	b.	failure to repay a loan
3.	b	default	c.	an item of economic value owned by an individual that could be converted to cash
4.	n	cash advance	d.	I=Prt
5.	p	full-service banking	e.	an agreement in which a borrower receives something of value, and agrees to pay for it later
6.	a	overdraft protection	f.	banking that is done over the internet; by telephone; or ATM
7.	o	principal	g.	an item of value pledged by a borrower to secure a loan
8.	f	self banking	h.	a secret number (password) to help protect your identity
9.	j	Rule of 72	i.	an approved loan amount that you can draw on as needed, with interest
10.	k	down payment	j.	an estimate of the time it takes to double the investment
11.	s	transaction	k.	a partial payment sometimes required at the time of purchase
12.	d	simple interest	l.	money earned on an investment or a fee paid for borrowing money
13.	l	interest	m.	the time between calculations of interest

13.	l	interest	m.	the time between calculations of interest
14.	t	compound interest	n.	a withdrawal of cash from an ATM or bank teller charged to a credit card
15.	m	compounding period	o.	the original amount invested or borrowed
16.	i	line of credit	p.	banking that is done with the help of a teller
17.	v	loan	q.	the time in years for an investment or loan
18.	w	payday loan	r.	the total amount of interest paid to borrow a sum of money
19.	u	amortization period	s.	any activity recorded on your bank statement (cash withdrawal, deposit, money transfer, bill payment, etc)
20.	g	collateral	t.	the interest paid on the principal PLUS interest
21.	e	credit	u.	the time required to pay back a loan
22.	c	asset	v.	money that is borrowed for a specific term, to be paid back with interest
23.	r	finance charge	w.	a small, short-term loan with a high interest rate intended to cover the borrower's expenses until their next pay day



CANADA Statement Dates: Nov. 1, 2011 - Nov. 31, 2011

Transaction Date	Posting Date	Activity description	Amount ($)
PREVIOUS STATEMENT BALANCE			$421.57
Nov. 02	Nov. 03	PAYMENT - THANK YOU	($421.57)
Nov. 06	Nov. 07	SHOES	$55.00
Nov. 20	Nov. 21	Burger King	$10.79
Nov. 25	Nov. 27	Irving Oil	$50.38

Payment Information

Minimum payment	
Payment due date	Dec. 10
Credit Limit	$4,000.00
Available credit	
Annual interest rate	19.50%

Calculating your banance

Previous balance	$
Payments & credits	$
Purchases	$
Cash advances	$
Interest	$
Other fees	$
New Balance	$

1. The interest rate is: 19.5%
2. What is the previous balance? $421.57
3. How much was her payment? $421.57
4. How much does she still owe after her payment? $0
5. What did she purchase in November? Shoes, Burger King (Food), Irving Oil (Gas/Oil?)
6. Calcuate the new balance. $116.77
7. What will her minimum payment be? $5.81 or 10.00
8. What is her available credit? $3083.83
9. If she pays the balance on December 9th, how much interest will she have to pay?

No Interest

3.25	84.81	43.09	29.19	22.24	18.08
5.00	85.61	43.87	29.97	23.03	18.87
5.25	85.72	43.98	30.08	23.14	18.99
5.50	85.84	44.10	30.20	23.26	19.10
5.75	85.95	44.21	30.31	23.37	19.22
6.00	86.07	44.32	30.42	23.49	19.33
6.25	86.18	44.43	30.54	23.60	19.45
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6.75	86.41	44.66	30.76	23.83	19.68
7.00	86.53	44.77	30.88	23.95	19.80

Sally borrowed $3500 at 6.25% interest for 5 years.

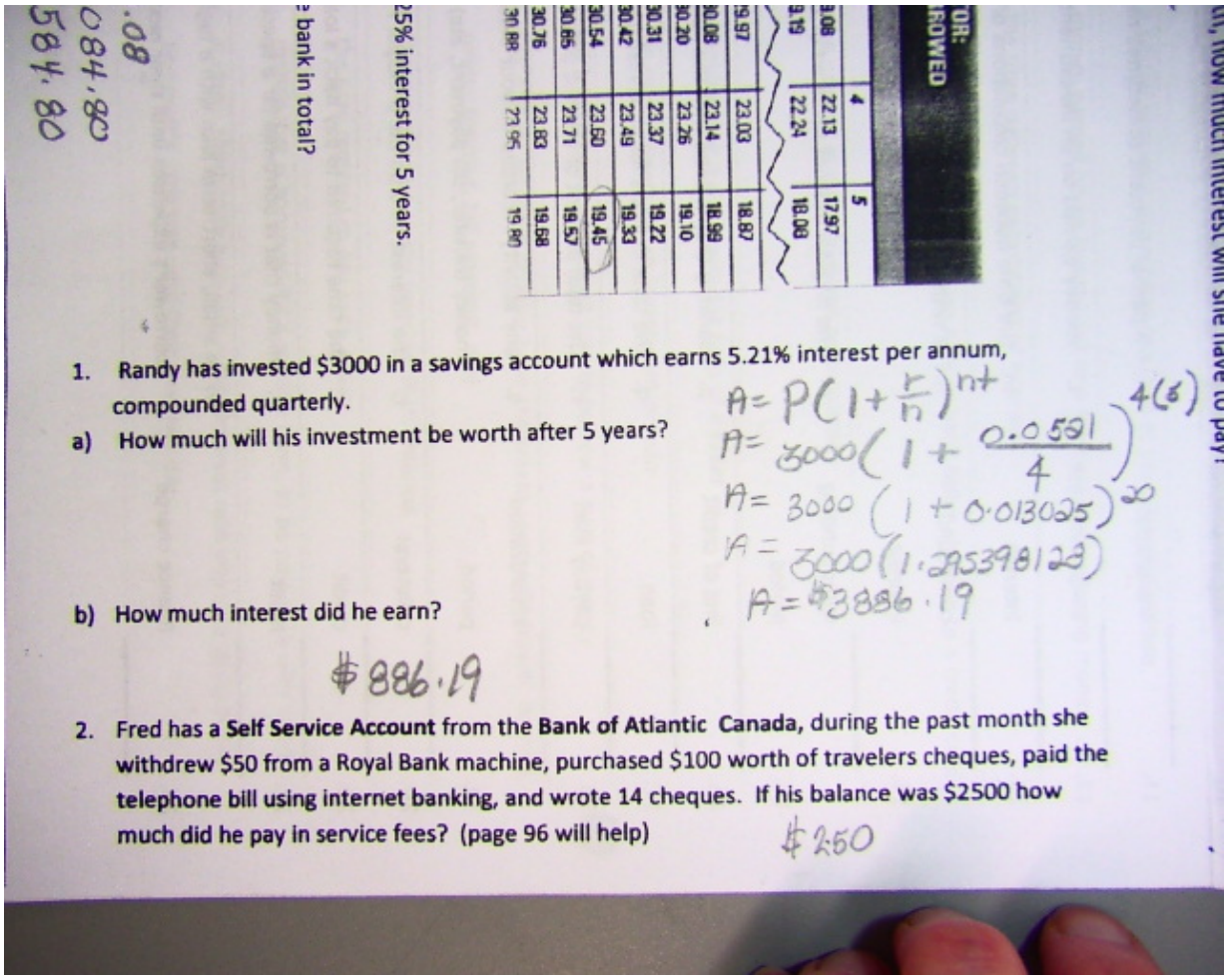
a) What is her monthly payment?
b) How much does she pay back to the bank in total?
c) What is the finance charge?

$\frac{3500}{1000} = 3.5$

a) $19.45 \times 3.5 = \$68.08$/month
b) $60 \times 68.08 = 4084.80$
c) $4084.80 - 3500 = \$584.80$

1. Randy has invested $3000 in a savings account which earns 5.21% i compounded quarterly.
   a) How much will his investment be worth after 5 years?

A=P A=



	4	5
	22.13	17.97
	22.24	18.08
	23.03	18.87
	23.14	18.99
	23.26	19.10
	23.37	19.22
	23.49	19.33
	23.60	19.45
	23.71	19.57
	23.83	19.68
	23.95	19.80

OR:
ROWED

25% interest for 5 years.

bank in total?

.08
084.80
584.80

1. Randy has invested $3000 in a savings account which earns 5.21% interest per annum, compounded quarterly.

a) How much will his investment be worth after 5 years?

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

$A = 3000(1 + \frac{0.0521}{4})^{4(5)}$

$A = 3000(1 + 0.013025)^{20}$

$A = 3000(1.295398123)$

$A = \$3886.19$

b) How much interest did he earn?

$\$886.19$

2. Fred has a **Self Service Account** from the **Bank of Atlantic Canada,** during the past month she withdrew $50 from a Royal Bank machine, purchased $100 worth of travelers cheques, paid the telephone bill using internet banking, and wrote 14 cheques. If his balance was $2500 how much did he pay in service fees? (page 96 will help) $\$250$