

SHARP

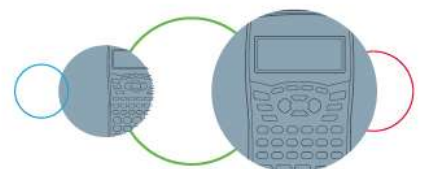
Worksheet 13 – Finance and Growth

Grade 10 – Mathematics

1. Determine the missing value for each of these using the simple interest formula:
- a) Joe invests R500 for 3 years at 8% interest per year. (R)
 - b) Abri receives R 1400 after investing for 5 years at 21% interest per year. (R)
 - c) Baruti invests R37 800 and after 5 and a half years receives R45 900. (C)
 - d) Dominic invests R5 410 and receives R7 720 after receiving 6.2% interest per year.(C)
 - e) Henrik invests R900 for 4 years and receives R1 500. (R)
 - f) Jess invests a certain amount at 12% interest. How long does it take to double? (P)
 - g) Kopano invests R500, what interest rate did he receive if his money tripled in 10 years? (C)
 - h) Lenka wants to earn R1000 in 5 years-time, using 13% interest. How much should he invest? (C)
 - i) Linda puts R6000 into her savings account earning 5.4% interest per year for 3 years. (R)
 - j) Lesedi manages to save R7 400 after 5 years investing at 16% simple interest. (R)

2. Complete the table for the missing values using compound interest.

Number	Principal Amount	Final Amount	Interest Per Year	Years
a)	72 200	85 100		3
b)	49 100		3.4%	4
c)		78 500	4.7%	2.5
d)	36 300	43 906		6
e)		91 400	5.3%	23
f)	21 500		14.5%	3.5
g)		1 600	6.8%	7
h)	82 700	95 876		2
i)	7 900		10.2%	9
j)	600	1 500		3



3. Mandisa decides to purchase a lounge suite from House and Home. Below is a picture of the advert:

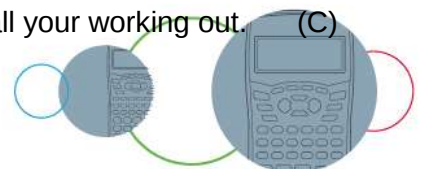


- If Mandisa pays a 15% deposit, how much will she have to take out a hire purchase loan for? (R)
- House and Home charges her 22% interest per year, with the loan payable over 3 years. What is the total amount Mandisa will have to pay back? (C)
- If she also pays a monthly insurance of R29 and administration fee of R13, how much will Mandisa have to pay a month. (C)
- How much more is Mandisa spending because she bought the lounge suite on hire purchase, than paying the cash price. (P)

4. Mosegi decides he needs several new appliances for his new home. He decides to purchase the following:

 Tek 4door Side by Side Fridge Freezer - TKFR495 (Mirror) R 9 999,00	 LG Washing Machineeach Front Loader F1292qdp5/10B8QBP5 7ka-Met R 5 299,00	
 LG 26 L Microwave Oven with Grill - MH6647SRWS (Met) R 1 199,00		

- What is the total amount Mosegi owes. (R)
- Mosegi has a budget of R2000 for the deposit. Furniture city requires a 12% deposit. Does Mosegi have enough money for the deposit? Show all your working out. (C)



- c) If Furniture city tells Mosegi that the total he would have to pay back over 2 years is R 18 872.57, what interest rate are they charging him? (C)
- d) Mosegi adds a cover all insurance policy for R56 a month. What are his monthly instalments? (C)

5. Given below is a table with the fuel prices for 2013.

Petrol	Reef	
	Unleaded	
	93	95
03 July 2013	1300	1323
05 June 2013	1216	1239
01 May 2013	1224	1247
03 April 2013	1297	1320
06 March 2013	1287	1308
06 February 2013	1206	1227
02 January 2013	1165	1186

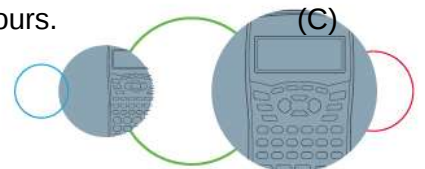
- a) Determine the rate of inflation per month from January to March for unleaded 93 petrol. (R)
- b) Determine the rate of inflation per month from January to May for unleaded 93 petrol. (R)
- c) Determine the rate of inflation per month from January to July for unleaded 93 petrol. (R)
- d) Explain why the three rates differ. (C)
- e) In July the government claims that the rate of inflation for petrol for the last two months is less than 5%. Prove that this is correct. (P)
- f) Mark says that his pocket money should increase according to the rate of petrol inflation. If he got R200 in January, what amount should he receive in July? (P)

6. In a small town in the Northern Cape, the population is currently at 5601 people. The town grows at a rate of 5.7% per year.

- a) How many people will the town have in 6 years-time? (R)
- b) How many people did the town start with 20 years ago? (C)
- c) If they need 10 000 people in order to be named a city in 3 years, what rate should the town grow at? (P)

7. A certain type of bacteria grows at different rates depending on what it is grown on. Each plate starts off with approximately 34 bacterial cells.

- a) After 5 hours the first plate has 81 bacterial cells. At what rate did the bacteria grow? (R)
- b) The second plate of bacterial cells is expected to grow at a rate of 22%. Determine how many bacterial cells are on the plate after 4 hours. (R)
- c) At what rate should the bacteria cells on plate 2 grow at, in order to reach the same number of bacterial cells grow on plate 1 in 5 hours, in 4 hours. (C)



- d) After 12 hours, the bacterial cells are expected to reach their peak population, using the rates in questions a and b, determine the peak number of bacterial cells for both plates. (P)

8. Given below is a table with the ratio of 1 South African Rand: x foreign currency in the first column, and in the second column 1 foreign currency: x South African Rands:

 South African Rand		
	1 Rand	in Rands
 Un. Arab Emirates Dirham	0.362	2.76
 Argentine Peso	0.533	1.875
 Australian Dollar	0.108	9.27
 Bulgarian Lev	0.15	6.648
 Brazilian Real	0.223	4.479
 Canadian Dollar	0.104	9.61
 Swiss Franc	0.095	10.51
 Chilean Peso	50	0.02

- a) Determine the number of Australian Dollars you would receive if you paid R100. (R)
- b) Determine the number of Rands you would receive if you had 15 Swiss Francs. (R)
- c) Determine the number of Dirham you would receive if you had 40 Australian Dollars. (C)
- d) Determine the number of Brazilian Reals you would have if you had 68 Canadian Dollars. (C)
- e) If a cup of coffee in the United Arab Emirates costs 20 Dirham, how many Argentinian Pesos would you need to exchange? (P)
- f) If you were travel to any of the countries listed above, which two would be the most expensive, and which two would be the least expensive. Give a reason for your answer. (C)
- g) If you were going to import chocolate from either Switzerland or Canada, where would you import from and why? (P)
- h) If you were going to export sugar to Bulgaria or Brazil, where would you get a better return on your investment? (P)

