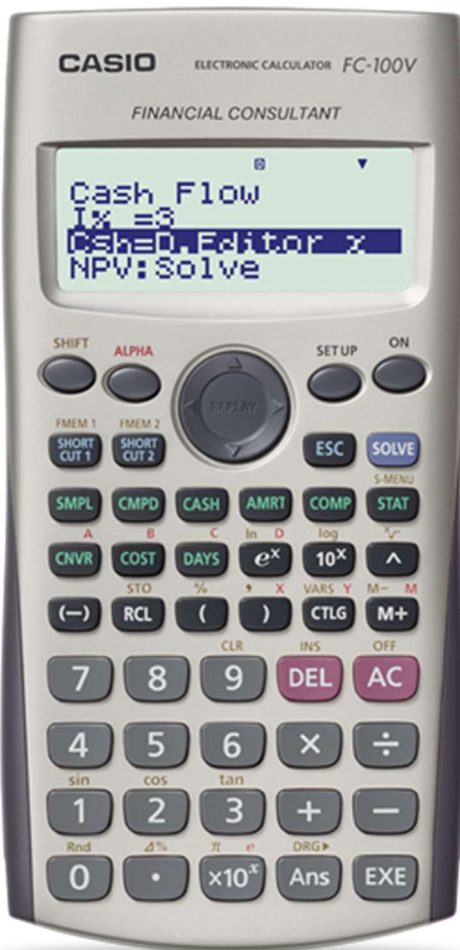


CASIO®

FINANCIAL CONSULTANT

fc-100V & fc-200V

Worksheet



<u>QUESTIONS</u>	
1	Payment at the Beginning of the Month
2	Determining Year Growth Rate
3	Mortgage Repayment
4	Determining Interest Repayment
5	Calculating difference between Ordinary Annuity & Annuity Due
6	Determining Monthly Loan Repayments
7	Determining Rate of Return
8	Determining Future Value
9	Calculating Cash flow, NPV & IRR
10	Amortisation

QUESTIONS

- ❖ Clear the calculator's memory before starting a calculation

<p>ON SHIFT 9 ▼ ▼</p> <pre> Clear? Setup :EXE Memory :EXE All :EXE </pre>	<p>EXE EXE</p> <pre> Reset All Press [AC] key </pre>	<p>AC</p> <pre> </pre>
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- Thandi is saving to buy a car, and plans to set aside R4 500 monthly for a car over the next two years.
If she makes the payments at the beginning of each month, and earns a rate of 8% per annum on her investment, how much money will Thandi have in two years?

CMPD EXE 1 ▼ 2 X 1 2 EXE 8 ÷ 1 2 EXE

```

Set:Besin
n =24
I% =0.666666667
PV 0
          
```

▼ (-) 4 5 0 0 EXE SOLVE

```

I% =0.666666667
PV =0
PMT=-4500
FV =117477.3496
          
```

Thandi will have R117 477.3496 ≈ R117 477.35 in two years' time.

- ❖ Clear the calculator's memory before starting a calculation

<p>ON SHIFT 9 ▼ ▼</p> <pre> Clear? Setup :EXE Memory :EXE All :EXE </pre>	<p>EXE EXE</p> <pre> Reset All Press [AC] key </pre>	<p>AC</p> <pre> </pre>
---	--	------------------------------------

2. If R50 000 was invested in a fund offering a rate of return of 12% per year, approximately how many years would it take for the investment to double?

CMPD ∇ ∇ 1 2 EXE \leftarrow 5 0 0 0 0 EXE

```

n = 0
I% = 12
PV = -50000
PMT 0
  
```

∇ 1 0 0 0 0 0 EXE \blacktriangle \blacktriangle \blacktriangle \blacktriangle \blacktriangle SOLVE

```

n = 6.11625874
I% = 12
PV = -50000
PMT = 0
  
```

It would take 6.12 years for the investment to double.

- ❖ Clear the calculator's memory before starting a calculation

ON SHIFT 9 ∇ ∇ EXE EXE AC

3. Amos plans to buy a house valued at R1,5 million. She has applied for a mortgage loan from her bank, and has been requested to pay a 20% deposit. The balance will be financed by the bank at 9% per annum over 30 years. Calculate her monthly mortgage repayment.

1 5 0 0 0 0 0 \times (1 0 0 SHIFT (= 2 0 SHIFT () EXE

```

1500000  $\times$  (100% - 20%
1200000
  
```

CMPD ∇ 3 0 \times 1 2 EXE 9 \div 1 2 EXE

```

Set:End
n = 360
I% = 0.75
PV 0
  
```

\leftarrow 1 2 0 0 0 0 0 EXE SOLVE

```

n = 360
I% = 0.75
PV = -1200000
PMT = 9655.471403
  
```

Monthly repayments will be R9 655.47

❖ Clear the calculator's memory before starting a calculation

ON SHIFT 9 ▼ ▼ EXE EXE AC

4. Reva borrows R45 000 from the bank at an interest rate of 9%, compounded annually, and to be repaid in three equal annual instalments.

The interest rate paid in the third year is closest to:

- a. R 4050.00
- b. R 3520.00
- c. R 3102.00
- d. R 1470.00
- e. R 2795.00

CMPD ▼ 3 EXE 9 EXE

Set:End
 n = 3
 I% = 9
 PV = 45000

(-) 4 5 0 0 0 EXE SOLVE

n = 3
 I% = 9
 PV = -45000
 PMT = 17777.46408

AMRT ▼ 3 EXE 3 EXE ▼ ▼ ▼ ▼ ▼ ▼ ▼ SOLVE

INT = 1467.864007

The interest rate paid in the third year is closest to R1470.00 (d)

❖ Clear the calculator's memory before starting a calculation

ON SHIFT 9 ▼ ▼ EXE EXE AC

5. Let us assume you are presented with two options for a retirement savings annuity:

For the first option, you will have to make equal annual payments of R60 000, at the end of each year, for a period of 40 years.

For the second option, you would have to make equal annual payments of R59 000, at the start of each year, for a period of 40 years.

At the end of the 40-year period, what would the difference be between the amounts saved, if the interest rate on both investments is 6%?

Option 1: Ordinary Annuity (End)	Option 2: Annuity Due (Beginning)
[CMPD] [▼] [4] [0] [EXE] [6] [EXE]	[CMPD] [EXE] [1] [▼] [4] [0] [EXE] [6] [EXE]
<pre> Set:End n =40 I% =6 PV 0 </pre>	<pre> Set:Begin n =40 I% =6 PV 0 </pre>
[▼] [(-)] [6] [0] [0] [0] [0] [EXE] [SOLVE]	[▼] [(-)] [5] [9] [0] [0] [0] [EXE] [SOLVE]
<pre> I% =6 PV =0 PMT =-60000 FV =2285717.967 </pre>	<pre> I% =6 PV =0 PMT =-59000 FV =2278813.33 </pre>
<p>Difference between the two retirement annuities is $R9\ 678\ 813.33 - R9\ 285\ 717.94 = R393\ 095.39$</p>	

- ❖ Clear the calculator's memory before starting a calculation
 [ON] [SHIFT] [9] [▼] [▼] [EXE] [EXE] [AC]

6. You are offered a 48 months bank loan to buy a new car. The bank offers you an interest rate of 13% per annum. If the car that you want to buy costs R300 000, how much will your monthly repayment be?

[CMPD] [▼] [4] [X] [1] [2] [EXE] [1] [3] [÷] [1] [2] [EXE]

```

Set:End
n =48
I% =1.083333333
PV 0
  
```

[(-)] [3] [0] [0] [0] [0] [0] [EXE] [SOLVE]

```

n =48
I% =1.083333333
PV =-300000
PMT =8048.248768
  
```

Monthly repayments will be R8 048.248768 ≈ R8 048.25

- ❖ Clear the calculator's memory before starting a calculation
 [ON] [SHIFT] [9] [▼] [▼] [EXE] [EXE] [AC]

7. What is the rate of return on an investment of R124 090 if the company expects to receive R10 000 per year for the next 30 years?

CMPD ∇ 3 0 EXE ∇ (-) 1 2 4 0 9 0

```

Set:End
n =30
I% =0
PV =-124090
  
```

EXE 1 0 0 0 0 EXE \blacktriangle \blacktriangle \blacktriangle SOLVE

```

I% =7.0000000000
PV =-124090
PMT=10000
FV =0
  
```

Rate of return is 7% for the next 30 years.

- ❖ Clear the calculator's memory before starting a calculation

ON SHIFT 9 ∇ ∇ EXE EXE AC

8. To what amount is the future value of R20 000 the closest, when earning an annual rate of 8%, compounded quarterly and invested for six years?
- R 37 993
 - R 38 902
 - R 36 871
 - R 32 169
 - R 39 656

CMPD ∇ 6 \times 4 EXE 8 \div 4 EXE

```

Set:End
n =24
I% =2
PV =0
  
```

(-) 2 0 0 0 0 EXE ∇ SOLVE

```

I% =2
PV =-20000
PMT=0
FV =32168.74499
  
```

The future value is closest to R32 169 (d)

- ❖ Clear the calculator's memory before starting a calculation

ON SHIFT 9 ∇ ∇ EXE EXE AC

9. Teddy Ltd. wants to purchase a new machine for production purposes. The machine will cost R560 450 and is expected to generate the following cash inflows from the increased production:

Year	Cash flow (R)
1	85 470
2	92 150
3	145 730
4	129 360
5	188 000

The company's cost of capital is 6%.

REQUIRED:

9.1 Calculate the Payback period for the machine.

9.2 Calculate the net present value (NPV) and the internal rate of return (IRR) for the machine.

CASH 6 EXE EXE (-) 5 6 0 4 5 0 EXE

8 5 4 7 0 EXE 9 2 1 5 0 EXE

1 4 5 7 3 0 EXE 1 2 9 3 6 0 EXE

1 8 8 0 0 0 EXE

ESC ▼ ▼ SOLVE

Cash Flow
I% =6
Csh=D.Editor x
NPV: Solve

NPV=-32497.26169

ESC ▼ SOLVE

I% =6
Csh=D.Editor x
NPV: Solve
IRR: Solve

IRR=4.088922707

ESC ▼ SOLVE

Csh=D.Editor x
NPV: Solve
IRR: Solve
PBP: Solve

PBP=5

Payback period for the machine is 5 years.

Net Present Value (NPV) is R32 497.26

Internal Rate of Return (IRR) is 4,0889%

❖ Clear the calculator's memory before starting a calculation

ON SHIFT 9 ▼ ▼ EXE EXE AC

10. Molemo applies for a R500 000 loan from ENB bank in order to buy a house. The term of the loan is 20 years and the rate of interest is 14% p.a. compounded monthly. Calculate the following:

- (a) His monthly instalment.
- (b) The payment details of the 13th instalment
- (c) The payment details after 15 years

CMPD ▼ 2 0 X 1 2 EXE 1 4 ÷ 1 2 EXE

```

Set:End
n =240
I% =1.166666667
PV 500000
  
```

(-) 5 0 0 0 0 0 EXE SOLVE

```

n =240
I% =1.166666667
PV =-500000
PMT=6217.604055
  
```

His monthly instalment is R6 217.60

Payment details of the 13th instalment

AMRT ▼ 1 3 EXE 1 3 EXE ▼ ▼ ▼ ▼ ▼ ▼ ▼ SOLVE

```

BAL=-494639.3898
  
```

ESC ▼ SOLVE	ESC ▼ SOLVE
INT=5775.945564	PRN=441.6584912

Balance: R494 639.39
Interest: R5 775.95
Principal amount: R441.66

Payment details after 15 years (15×12=180)

AMRT ▾ 1 8 0 EXE 1 8 0 EXE 1 5 X 1 2 EXE

```
PM1=180
PM2=180
n =180
i% =1.16666667
```

▾ ▾ ▾ ▾ ▾ ▾ SOLVE

BAL=-267214.0719

ESC ▾ SOLVE

INT=3153.248322

ESC ▾ EXE

PRN=3064.355733

Balance: R267 214.07
Interest: R3 153.25
Principal amount: R3 064.36

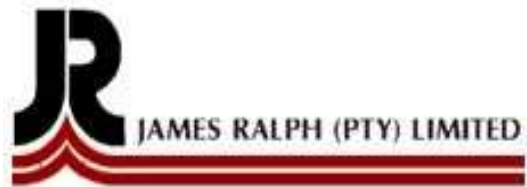
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