∑ DANEMATHICS
FREE CAPS MATHS RESOURCES

GRADE 10 · FINANCE AND GROWTH

Hire Purchase, Exchange Rates & Population Growth (Grade 10)

MARKING GUIDELINE

MARKS	DURATION	QUESTIONS
37	1 hour	3

Name: _____ Class: _____

Date: _____

MARK ____ / 37

INSTRUCTIONS AND INFORMATION

1. Answer **ALL** the questions in this question paper.
2. Answer QUESTION 1 by **circling** the letter (A–D) in the answer grid at the end of that section.
3. Show **ALL** calculations clearly.
4. Show all units where applicable.
5. Number the answers correctly according to the numbering system used in this question paper.
6. A non-programmable calculator may be used, unless stated otherwise.
7. Write neatly and legibly.

QUESTION 1 [10 MARKS]

Four options are given as possible answers to the following questions. Choose the correct answer and circle the letter (A–D) in the grid at the end of this section. If you want to change your choice, put a cross through the wrong letter and circle your new choice.

1.1 A phone is advertised at R229 per month for 24 months with no deposit. The total paid is ... (1)

A) R229
B) R5 496 ✓
C) R2 748
D) R5 267

Answer: B — $229 \times 24 = R5\,496$.

- **A** — that is ONE instalment, not the total
- **C** — used 12 months instead of 24
- **D** — counted 23 instalments instead of 24

1.2 That phone's cash price is R4 779,13. The total INTEREST paid over the 24 months is ... (1)

A) R4 779,13
B) R5 496
C) R229
D) R716,87 ✓

Answer: D — Interest = total paid − cash price = $5\,496 - 4\,779{,}13 = R716{,}87$.

- **A** — that is the cash price, not the interest
- **B** — that is the total paid, not the interest
- **C** — that is one instalment

1.3 A fridge costs R8 000 cash. On hire purchase there is a 10% deposit and 24 payments of R400. The total paid is ... (1)

A) R9 600 **B)** R10 000

C) R8 800 **D) R10 400 ✓**

> **Answer: D** — The deposit is 10% of 8 000 = R800, and 24 × 400 = R9 600.
> - **A** — left out the deposit
> - **B** — added only some of the instalments to the deposit
> - **C** — added the CASH PRICE to the deposit instead of the instalments

1.4 The rate is £1 : R22,32. A phone costing £250 costs ... in rand. (1)

A) R5 000 **B) R5 580 ✓**

C) R11,20 **D)** R272,32

> **Answer: B** — Multiply by the rate: 250 × 22,32 = R5 580.
> - **A** — rounded the rate down to 20
> - **C** — DIVIDED by the rate instead of multiplying
> - **D** — ADDED the rate to the price

1.5 The rate is $1 : R18,50. R1 500 converts to ... (1)

A) $1 518,50 **B)** $18,50

C) $81,08 ✓ **D)** $27 750

> **Answer: C** — Going FROM rand TO dollars you divide by the rate: 1 500 ÷ 18,50.
> - **A** — added the rate instead of dividing by it
> - **B** — that is the rate itself, not the converted amount
> - **D** — MULTIPLIED by the rate instead of dividing

1.6 A town of 50 000 people grows at 3% per year, compounded. After 4 years the population is ... (1)

A) 56 000 **B)** 51 500

C) 58 493 **D) 56 275 ✓**

> **Answer: D** — $A = P(1+i)^n = 50\,000(1{,}03)^4 = 56\,275$.
> - **A** — used SIMPLE growth, $50\,000(1 + 4 \times 0{,}03)$, which misses the compounding
> - **B** — grew the population for one year only
> - **C** — rounded the growth rate up to 4% a year

1.7 Hire purchase always costs more than paying cash because ... (1)

A) interest is charged on the amount still owed ✓ **B)** the deposit is an extra charge

C) VAT is added twice **D)** the instalments include delivery

> **Answer: A** — Paying over time means paying interest, and that interest is what pushes the total above the cash price.
> - **B** — the deposit is part of the price, not an extra charge on top
> - **C** — VAT is charged once, and it is already inside the cash price
> - **D** — delivery is a separate charge, not what makes hire purchase dearer

1.8 The rand weakens from R18,00 to R19,50 to the US dollar. For a South African buyer this means ... (1)

A) imported goods become cheaper
B) imported goods become more expensive ✓
C) overseas travel becomes cheaper
D) the petrol price is unaffected

> **Answer: B** — Imports are paid for in dollars, and every dollar now costs R1,50 more — so the same goods cost more rand.
>
> - **A** — each dollar now costs MORE rand, so the same imported item costs more
> - **C** — a weaker rand buys fewer dollars, so a trip abroad costs more, not less
> - **D** — crude oil is bought in dollars, so a weaker rand pushes the petrol price up

1.9 An item costs R2 400 excluding VAT at 15%. Including VAT it costs ... (1)

A) R2 760 ✓
B) R2 040
C) R360
D) R2 415

> **Answer: A** — $2\,400 \times 1{,}15 = \text{R}2\,760$.
>
> - **B** — SUBTRACTED the VAT instead of adding it
> - **C** — that is the VAT amount alone, not the total price
> - **D** — added 15 rand instead of 15 per cent

1.10 A laptop is advertised at R450 per month for 36 months with a R2 000 deposit. The total cost is ... (1)

A) R20 200
B) R18 200 ✓
C) R16 200
D) R2 450

> **Answer: B** — $36 \times 450 = \text{R}16\,200$, plus the R2 000 deposit.
>
> - **A** — added the deposit on twice
> - **C** — left out the R2 000 deposit
> - **D** — added one instalment to the deposit instead of all 36

ANSWER GRID — MARKING GUIDELINE

1.1	A	**(B)**	C	D
1.2	A	B	C	**(D)**
1.3	A	B	C	**(D)**
1.4	A	**(B)**	C	D
1.5	A	B	**(C)**	D
1.6	A	B	C	**(D)**
1.7	**(A)**	B	C	D
1.8	A	**(B)**	C	D
1.9	**(A)**	B	C	D
1.10	A	**(B)**	C	D

QUESTION 2 [13 MARKS]

Jamie buys a small business for R250 000. It earns R1 000 in the first month and R3 000 in every month after that. The money is deposited into an account and no interest is added.

2.1 Write down the balance in the account at the end of the 3rd month and the 4th month. (2)

> Month 3: **R7 000** *(1)*; month 4: **R10 000** *(1)*

2.2 Determine an expression, in terms of n, for the balance after n months. **(3)**

> The balance rises by R3 000 a month from R1 000 *(1)*
> **Balance $= 3\,000n - 2\,000$** *(2)*

2.3 Determine how long it takes Jamie to break even — that is, to get his R250 000 back. Give your answer in YEARS. **(4)**

> $3\,000n - 2\,000 = 250\,000$ *(1)*
> $3\,000n = 252\,000$ *(1)*
> $n = 84$ months *(1)* $=$ **7 years** *(1)*

2.4 Determine how many months it takes Jamie to make a PROFIT of R30 000. Give your answer in years and months. **(4)**

> $3\,000n - 2\,000 = 280\,000$ *(2)*
> $n = 94$ months *(1)*
> $=$ **7 years and 10 months** *(1)*

QUESTION 3 **[14 MARKS]**

A fridge has a cash price of R12 000. On hire purchase a 10% deposit is paid and the balance is repaid over 3 years at 15% p.a. simple interest.

3.1 Calculate the deposit and the balance owing. **(3)**

> Deposit $=$ R1 200 *(2)*; balance $=$ **R10 800** *(1)*

3.2 Calculate the monthly instalment. **(4)**

> Interest $= 10\,800 \times 0{,}15 \times 3 =$ R4 860 *(2)*
> Total to repay $=$ R15 660 over 36 months *(1)*
> $\frac{15\,660}{36} =$ **R435** *(1)*

3.3 The exchange rate is \$1 $=$ R18,50. Convert \$240 to rands, and R5 000 to dollars. **(4)**

> $240 \times 18{,}50 =$ **R4 440** *(2)*
> $\frac{5\,000}{18{,}50} =$ **\$270,27** *(2)*

3.4 A town's population of 1 200 000 grows at 2,3% per year. Calculate the population after 5 years, to the nearest whole number. **(3)**

> $P = 1\,200\,000(1{,}023)^5$ *(2)* $=$ **1 344 496** *(1)*

TOTAL: 37 marks

This question paper consists of 3 questions.

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