

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This examination consists of **9** questions.
2. Answer **ALL** the questions in the space provided.
3. Clearly show **ALL** calculations, diagrams, graphs, etc. which you have used in determining your answers.
4. Answers only will **NOT** necessarily be awarded full marks.
5. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.
6. If necessary, round off answers correct to **TWO** decimal places, unless stated otherwise.

Diagrams are **NOT** necessarily drawn to scale.
7. Leave all exponents in positive exponential form.
- 8.

QUESTION 1

1.	Various options are given below. Circle the correct answer.	
1.1	10l : 20ml as a simplified ratio is: a) 1 : 2 b) 500 : 1 c) 5 : 4 d) 2 : 4	(1)
1.2	Jamie has 21 out of 40 for her mathematics test. What is her mark as a percentage? a) 51% b) 40% c) 52,5% d) 21%	(1)
1.3	If Samantha drives at a constant speed of 120km/h for 3 hours. How many kilometres has she travelled for? a) 40km b) 300km c) 120km d) 360km	(1)
1.4	Which one of the following number is irrational? a) $\sqrt{21}$ b) $\sqrt{64}$ c) $\frac{1}{2}$ d) 0,33	(1)
1.5	Between which two integers does $\sqrt{52}$ lie? a) 7 and 8 b) 5 and 2 c) 6 and 7 d) undefined	(1)
1.6	Factorize fully: $100a^4 + 64b^4$ a) Cannot be factorised b) $(10a - 8b)(10a + 8b)$ c) $4(25a^2 + 4b^2)(25a^2 - 4b^2)$ d) $4(25a^4 + 16b^4)$ $= 4(5a + 2b)(5a - 2b)$	(1)
1.7	If $x = 4$, find the value of $2x^2 + 5x + 21$ a) 49 b) 105 c) 73 d) 41	(1)
1.8	Solve for x , if: $-3x + 1 = 4$ a) 1 b) -1 c) $-\frac{1}{2}$ d) $\frac{3}{4}$	(1)

2.6	$(x - 3)^2$	
		(3)
2.7	$(abc)^{-3}$	
		(2)
2.8	$\frac{x^2 \cdot x^{-5}}{x^{-2}}$	
		(2)
2.9	$\frac{(2 \times 4)^{-2} \cdot (2 \times 4)^2}{(2 \times 4)^{-3}}$	
		(2)
2.10.1	Write this number in scientific notation: 0,00000517	
		(2)
2.10.2	Write this number in decimal notation: $3,587613 \times 10^7$	
		(2)
2.10.3	Calculate, leaving the answer in scientific notation form: $(4,2 \times 10^{-4}) \times (3 \times 10^6)$	
		(2)

(23)

QUESTION 3

3.1	Factorise fully (if possible):	
3.1.1	$4b + 8$	
		(2)
3.1.2	$8b^2 - 2$	
		(3)
3.1.3	$12a^3 b c^2 - 8a^2 b - 16a^2 b^2$	
		(2)
3.1.4	$a^2 - 10a + 24$	
		(2)
3.1.5	$x^2 + 5b + 3d$	
		(1)
3.1.6	$\frac{1}{64}x^2 - \frac{1}{4}$	
		(3)
3.1.7	$\frac{-12x^2 + 4x}{-6x}$	
		(4)

(17)

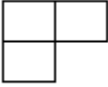
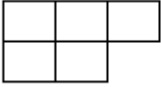
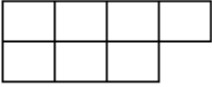
QUESTION 4

4.1	Solve for the variable in each of the following equations	
4.1.1	$11 = 3b - 4$	
		(2)
4.1.2	$6x - 5 = 2x - 21$	
		(3)
4.1.3	$\frac{4x}{3} = \frac{x-1}{2}$	
		(4)
4.1.4	$x(x - 1) = 0$	
		(2)
4.1.5	$x^2 + 5x = -6$	
		(4)

4.1.6	$2(x + 2) - 4 = -x(x + 1) 2 - 1$	
4.1.7	27 is the answer when you add 4 to a number and then treble it. What is the number?	
		(3)

(22)

QUESTION 5

5.1	Study the pattern below and answer the questions that follow: <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Pattern 1</p> </div> <div style="text-align: center;">  <p>Pattern 2</p> </div> <div style="text-align: center;">  <p>Pattern 3</p> </div> </div>	
5.1.1	In the space provided below, draw pattern 4.	
		(1)
5.1.2	Determine the general formula of the above pattern in the form of $y =$	
		(3)
5.1.3	How many squares will there be in pattern 24?	
		(2)
5.1.4	Which pattern has 27 squares?	
		(3)

(9)

QUESTION 6

6.1	If Byron earns R70 per hour and Mandy earns R110 per hour, write down the simplified ration of Byron and Mandy's money	
		(2)
6.2	Simplify the ratio if , 40ml of concentration needs to be mixed with 1l of water.	
		(3)
6.3	If R10 850 is to be shared between Sidney, James and Raylene in the ratio 1 : 2 : 4, Calculate how much Raylene would receive.	
		(2)

(7)**QUESTION 7**

7.1	If Julian covers a distance of 720km in 6 hours. What speed did he travel?	
		(2)
7.2	My car can travel 15,2km on every 1 litre of fuel. How much fuel would I need if I want to travel 750 km?	
		(3)
7.3	If Sabash can run 3km in 18 minutes. Calculate his speed in <u>metres per second</u>	
		(4)

(9)

QUESTION 8

8.1	If Adrian invests R105 000 for 10 years at a simple interest rate of 6,8%, how much will he have in total at the end of 10 years?	
		(2)
8.2	If Adrian decides to invest the R105 000 for 2 years at a compound interest rate of 9,3% how much would he have?	
		(3)
8.3	At the end of 5 years Melissa received R28 500. Her money was invested at a simple interest rate of 4%. What was her principal amount?	
		(4)
8.4	Mr Naidoo wants to purchase a washing machine. The cash price is R5 999. He agrees to buy it on HP. The terms are as follows: A deposit of 5% of the cash price, thereafter R320 per month for 2 years. What is the total amount the he will pay for the washing machine on HP?	
		(4)
8.5	Mrs Smith wants to go to London during the December vacation. She will exchange R15 000 at Rennie's Foreign Exchange. They charge 3,4% commission for using their service. How many pounds would she get if the current exchange rate is £1 = R18,85	
		(4)

(17)

QUESTION 9

9.1	Lindi goes to a buffet restaurant. Her options are as follows: <table><tr><td><u>Starters:</u></td><td><u>Mains:</u></td><td><u>Dessert:</u></td></tr><tr><td>Soup (SO)</td><td>Roast Beef (RB)</td><td>Ice-cream (IC)</td></tr><tr><td>Salad (SA)</td><td>Roast Lamb (RL)</td><td>Fruit Salad (FS)</td></tr><tr><td>Cheese (CH)</td><td></td><td></td></tr></table>	<u>Starters:</u>	<u>Mains:</u>	<u>Dessert:</u>	Soup (SO)	Roast Beef (RB)	Ice-cream (IC)	Salad (SA)	Roast Lamb (RL)	Fruit Salad (FS)	Cheese (CH)			
<u>Starters:</u>	<u>Mains:</u>	<u>Dessert:</u>												
Soup (SO)	Roast Beef (RB)	Ice-cream (IC)												
Salad (SA)	Roast Lamb (RL)	Fruit Salad (FS)												
Cheese (CH)														
9.1.1	Draw a tree diagram below, if she chooses one of each course including all possible outcomes.	(4)												
9.2	What is the probability of choosing a lamb dish.	(2)												

(6)**Total: 120**