

Form Three Mathematics Test (2023–2024)

Ch.4 Percentage (II)

Class: F . 3 ()

Name: _____ ()

Time Allowed: 35 minutes

Mark	/37	Class Average
Parent's Signature:		

Unless specified, the figures are not necessary drawn to scale.

Section A: Multiple Choice (10 marks)

Put the best answer in the spaces provided in the box below.

Question	1	2	3	4	5
Answer					

- The number of visits to a website decreased from 8000 yesterday to 6640 today. Find the decay factor.
 - $1 + 17\%$
 - $1 - 17\%$
 - 17%
 - -17%
- If the length of a rectangle is increased by 10%, and its width is decreased by 10%, then the area of the rectangle will
 - remain unchanged.
 - be increased by 1%.
 - be decreased by 1%.
 - be increased by 2%.



3. When a number is first increased by 25% and then decreased by $r\%$, it remains unchanged. What is the value of r ?

A. 20
B. 25
C. 75
D. 80

4. If the price of a computer is increased by 30% and then decreased by 40%, find the overall percentage change in the price of the computer.

A. -78%
B. -48%
C. -22%
D. -10%

5. Last year, the ratio of the numbers of boys to girls in S3 was 4 : 3. The number of girls is increased by 26% and the number of boys is decreased by 30% this year. What is the percentage change in the total number of S3 students?

A. +6%
B. +4%
C. -6%
D. 0%

Section B: Short Questions (5 marks)

	Question	Answer												
1.	There are 20 000 viewers watching an online video and the number of viewers decreases at a constant rate of 10% per hour. Find the number of viewers watching the online video 4 hours later.													
2.	Larry deposits \$9000 in a bank at a simple interest rate of 6% p.a. Find the amount he will receive after 3 years.													
3.	Candy deposits \$88 000 in a bank at 4% p.a. compounded half-yearly. Find the compound interest she will receive after 3 years. (Give your answer correct to the nearest integer.)													
4.	<p>Refer to the progressive tax rates as shown below.</p> <table border="1"> <thead> <tr> <th>Net chargeable income</th> <th>Tax rate</th> </tr> </thead> <tbody> <tr> <td>On the first \$50 000</td> <td>2%</td> </tr> <tr> <td>On the next \$50 000</td> <td>6%</td> </tr> <tr> <td>On the next \$50 000</td> <td>10%</td> </tr> <tr> <td>On the next \$50 000</td> <td>14%</td> </tr> <tr> <td>Remainder</td> <td>17%</td> </tr> </tbody> </table> <p>The net chargeable income of Robert is \$76 000. How much salaries tax should he pay?</p>	Net chargeable income	Tax rate	On the first \$50 000	2%	On the next \$50 000	6%	On the next \$50 000	10%	On the next \$50 000	14%	Remainder	17%	
Net chargeable income	Tax rate													
On the first \$50 000	2%													
On the next \$50 000	6%													
On the next \$50 000	10%													
On the next \$50 000	14%													
Remainder	17%													

5.	<p>Refer to the progressive tax rates as shown below.</p> <table border="1" data-bbox="319 114 835 399"> <thead> <tr> <th data-bbox="319 114 668 159">Net chargeable income</th><th data-bbox="668 114 835 159">Tax rate</th></tr> </thead> <tbody> <tr> <td data-bbox="319 159 668 204">On the first \$50 000</td><td data-bbox="668 159 835 204">2%</td></tr> <tr> <td data-bbox="319 204 668 249">On the next \$50 000</td><td data-bbox="668 204 835 249">6%</td></tr> <tr> <td data-bbox="319 249 668 294">On the next \$50 000</td><td data-bbox="668 249 835 294">10%</td></tr> <tr> <td data-bbox="319 294 668 339">On the next \$50 000</td><td data-bbox="668 294 835 339">14%</td></tr> <tr> <td data-bbox="319 339 668 399">Remainder</td><td data-bbox="668 339 835 399">17%</td></tr> </tbody> </table> <p>The salaries tax of Joseph is \$31 470. Find his net chargeable income.</p>	Net chargeable income	Tax rate	On the first \$50 000	2%	On the next \$50 000	6%	On the next \$50 000	10%	On the next \$50 000	14%	Remainder	17%	
Net chargeable income	Tax rate													
On the first \$50 000	2%													
On the next \$50 000	6%													
On the next \$50 000	10%													
On the next \$50 000	14%													
Remainder	17%													

Section C: Long Questions (22 marks)

6. Terry played a new game and got a score of 500. After watching a video tutorial, he tried the game again and his score increased by 15%. However, his score decreased by 8% in his third trial. Find the overall percentage change in these three trials. (4 marks)

7. Yesterday, a hotdog stand sold 200 hotdogs and each hotdog was sold at \$30. Today, the number of hotdogs sold increases by 5%, while the price of each hotdog decreases by 10%. Nancy claims that the income from selling hotdogs today is less than that yesterday. Do you agree? Explain your answer. (4 marks)

8. The present length of a puppy is 44 cm and its length has been increasing at a rate of 3% per month. Find the length of the puppy half a year ago.

(3 marks)

9. The number of *lactic acid bacteria* in a drink at room temperature decreases by $r\%$ per hour. It is known that there are 1 000 000 and 640 000 lactic acid bacteria before and after putting the drink at room temperature for 2 hours respectively. Find the value of r .

(3 marks)

L_0

1

\therefore

10. Joyce borrowed a sum of money from a bank at a simple interest rate of 7.5% p.a. After 5 years, she repaid an amount of \$12 375. Find the principal that Joyce borrowed.

(3 marks)

\therefore

11. Two banks, *A* and *B*, offer deposit interests as follows:

Bank A

Compounded quarterly at an interest rate of 4.5% p.a.

Bank B

Compounded monthly at an interest rate of 4.3% p.a.

Billy is going to deposit \$360 000 for 2 years in one of these banks. In which bank should he deposit the money in order to earn more interest? Explain your answer.

(5 marks)

- END OF PAPER -