

Form Three Mathematics Test (2023–2024)

Ch.4 Percentage (II)

Class: F . 3 ()

Name: _____ ()

Time Allowed: 35 minutes

Date: 31/10/2023

| | | | |
|----------------------------|------------|----------------------|--|
| Mark | /37 | Class Average | |
| Parent's Signature: | | | |

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

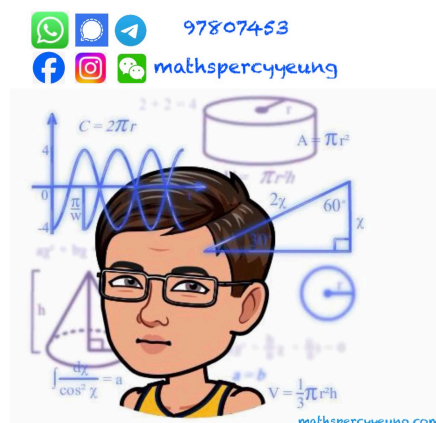
Section A: Multiple Choice (10 marks)

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><tr><th>Net chargeable income</th><th>Tax rate</th></tr><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></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.

Refer to the progressive tax rates as shown below.

| 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% |

The salaries tax of Joseph is \$31 470. Find his net chargeable income.

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)

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1

∴

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)

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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 -