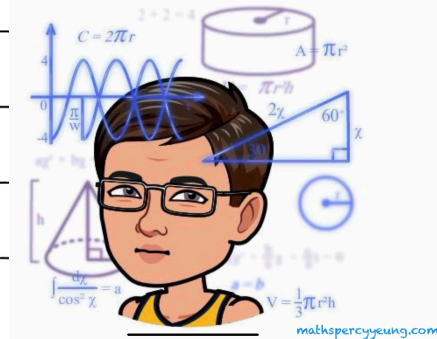


1. Evaluate $(1.7 \times 10^4) \times (6 \times 10^{-8})$ without using a calculator and express the answer in scientific notation.



(3 marks)



2. Convert 81_{10} to a binary number.

(3 marks)

3. Candy borrows a sum of money from a bank at a simple interest rate of 4%. If she needs to repay the sum of money together with a simple interest of \$480 to the bank after 3 years, find the sum of money she borrows.

(3 marks)

4. A pen is worth \$2 700 now. If its value depreciates by 16% each year, what was its value 3 years ago? (*Give the answers correct to the nearest dollar.*)

(4 marks)

5. There are 23 500 books in a library. If the average price of a book is \$90, estimate the total price of all the books in the library in scientific notation.

(4 marks)

6. A metal rod with length 25 cm is heated up. If its length increases at a constant rate of 8% each minute,

(a) what is the growth factor?

(b) find the length of the metal rod after 6 minutes, correct to the nearest 0.1 cm.

(5 marks)

7. Find the value of each of the following and express the answer as an integer or a simplest fraction.

(a) $3^0 \times 5^{-2}$

(b) $\frac{1}{6^{-3}} \times (-2)$

(c) $\frac{(-2)^0 \times 9^{-1}}{9^4}$

(6 marks)

8. There were 1200 students in a school last year, 60% of them were boys. This year, the number of boys is increased by 5% and the number of girls is decreased by 10%. Find the number of students in the school this year.

(6 marks)

(c) $\frac{3^n + 3^{n+1} + 3^{n-2}}{3^n - 3^{n+1} + 3^{n-2}}$

[illegible]

10. Vicky wants to deposit a sum of money $\$P$ in a bank.
- (a) Bank A offers an interest rate of 10% p.a. compounded half-yearly and Vicky can get an amount of $\$388\,962$ after 2 years. Find the value of P .
 - (b) Bank B offers an interest rate of 24% p.a. compounded monthly. The manager in Bank B claims that Vicky can receive an amount greater than $\$388\,962$ after 1 year. Do you agree? Explain your answer.

(8 marks)

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.