| Exercise 1 Simplify the following expr | essions: | | | | | Calc. : . 8 marks |
|--|---|---------------------|-------------------------|---------------|--------------------------------------|----------------------|
| a) $5x^3y^2 \times 3x^4y^3$ b) | $\frac{20p^4q^5}{4pq^2}$ | c) | $\frac{a^2}{a\sqrt{a}}$ | d) | $\left(x^2y^4\right)^{-\frac{1}{2}}$ | |
| Exercise 2 Given that $p = 6.5 \times 10^6$, $q =$ | $= 5 \times 10^{-4}$ and | $r = 1.8 \times 10$ | ³ , evaluate | the followin | g: | Calc. : , 8 marks |
| a) <i>pq</i> | b) $\frac{p}{q}$ | | | c) q^2r | | |
| Exercise 3 Solve the following equation | ns: | | | | | Calc. : 6 8 marks |
| a) $x^2 - 6x + 5 = 0$ | b) $x^2 +$ | 2x - 2 = 0 | | c) $2x^2 - x$ | - 6 = 0 | |
| Exercise 4 The number of plastic bottle | es found in a | lake each mo | onth can be r | nodelled by | the formula | Calc. : |
| | | $n = 10 \times 2^t$ | | | | |
| where t is the time in month | IS. | | | | | |
| a) Determine how many | a) Determine how many plastic bottles was found initially. | | | | | |
| b) Complete the table | | | - | | | 2 marks |
| $\begin{array}{c} \text{Months } (t) \\ \text{Number of bottles } (n) \end{array}$ | 0 | 1 | 2 | 3 | 4 | |
| c) Use the diagram below | to plot a gra | ph showing t | the relations | hip between | n and t . | 2 marks |
| | | | | | | |
| -16 | 0 | | | | | |
| 14 | 0 | | | | | |
| 12 | 0 | | | | | |
| | | | | | | |
| -10 | 0 | | | | | |
| | 0 | | | | | |
| | - | | | | | |
| 6 | 0 | | | | | |
| 4 | 0 | | | | | |
| 2 | 0 | | | | | |
| | | | | | | |
| | 0 1 | 2 3 | 4 5 | 6 | | |
| d) Determine the type of | function for | the graph. | | | | 1 mark |
| e) Use your graph to estin | nate how ma | any bottles w | ere found af | ter 3.5 mont | hs. | 1 mark |
| f) Comment : will this fo | ormula alway | s give an acc | urate accour | nt of the nu | mber of bottles i | n 1 mark |
| the lake? | a.r. a.g. | . <u>6</u> and abo | | | | |

| Exercise 5 | | | | | | | Calc. : 🗡 |
|--|----|-----|-----|----------------------|-----|---|-----------|
| Complete the table showing the exact values for the following trigonometric functions | | | | | | | 6 marks |
| Angle θ | 0ř | 30ř | 45ř | 60ř | 90ř |] | |
| $\sin(\theta)$ | | | | $\frac{\sqrt{3}}{2}$ | 1 | | |
| $\cos(\theta)$ | 1 | | | | | | |
| | | | | | | | |
| $\tan(\theta)$ | | | 1 | | | | |
| | | | | | | | |

| Exercise 6 | | | Calc. : 🗡 |
|-------------------------------------|-----------------------|---------------------------------|--------------------|
| Isolate x in the following | expressions | | $7 \mathrm{marks}$ |
| | | | |
| a) $-z + y - x = 25$ | b) $-9x - p^2 = -27p$ | c) $3 = \frac{y - z}{\sqrt{z}}$ | |
| | | \sqrt{x} | |





