QUIZ
INDICES, SURDS AND LOGARITHMS

INSTRUCTION: Please answer all questions.

1. Simplify the following expression and write the answer in the box below.

(a) $\dfrac{\left(x^{m+n}\right)^2 \cdot \left(x^{n+p}\right)^2 \cdot \left(x^{p+m}\right)^2}{\left(x^{mnp}\right)^3}$

= ☐

= x

(b) $\left(\sqrt{a}+\sqrt{4b}\right)\left(\sqrt{a}-4\sqrt{b}\right)$

= ☐

2. Find the exact value without using calculator.

$$\frac{2+\log_7 49}{\frac{1}{2}\log_3 81} = \underline{\qquad\qquad}$$

3. Given that $p = \log_a 4$ and $q = \log_a 5$. Express $\log_a 100$ in terms of p and q .(*Use **/**)

☐ pq^2 ☐ $p+2q$ ☐ $p-2q$ ☐ $2pq$

4. Given that $\left(2-a\sqrt{3}\right)\left(5+4\sqrt{3}\right) = -2+b\sqrt{3}$ where a and b are integers. Find the value of a and b .

a = ☐ , b = ☐

5. Match the following expression with the form 7^k .

(a) $\left(\sqrt[3]{7}\right)^2$ — $7^{\frac{5}{2}}$

(b) $\dfrac{1}{7\sqrt[3]{7}}$ — $7^{\frac{2}{3}}$

(c) $7^2 \times \sqrt[4]{49}$ — $7^{-\frac{4}{3}}$