

1. **Nov/2023/Paper_0606/22/No.3**

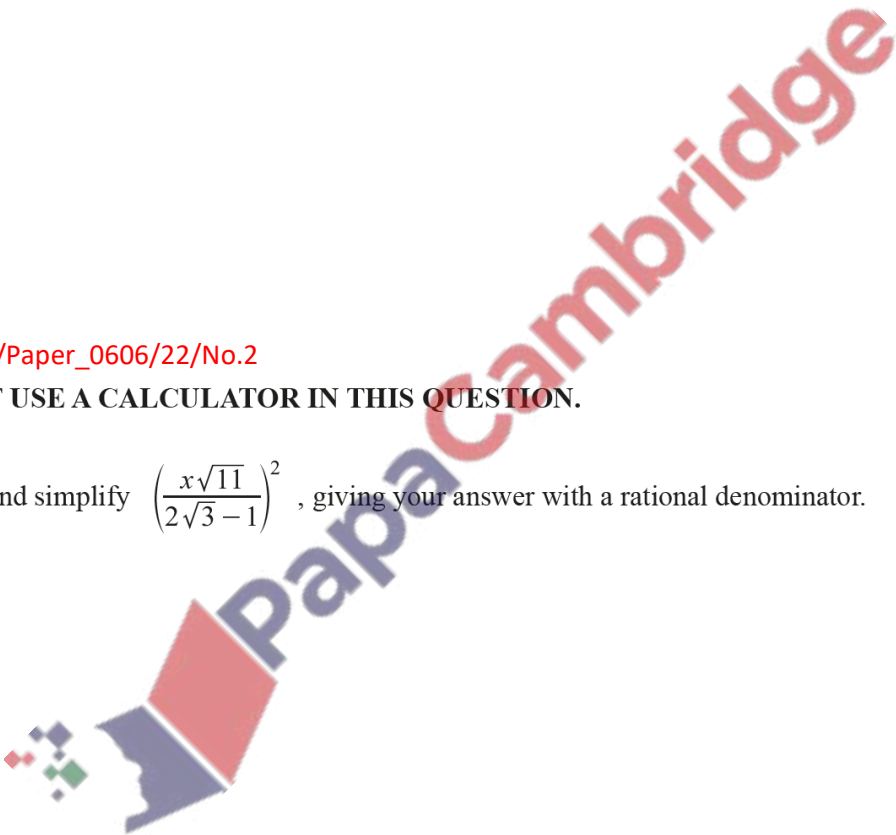
DO NOT USE A CALCULATOR IN THIS QUESTION.

A cylinder has base radius $(2 + \sqrt{3})$ m and volume $\pi(16 + 9\sqrt{3})\text{m}^3$. Find the exact value of its height, giving your answer in its simplest form. [4]

2. **March/2023/Paper_0606/22/No.2**

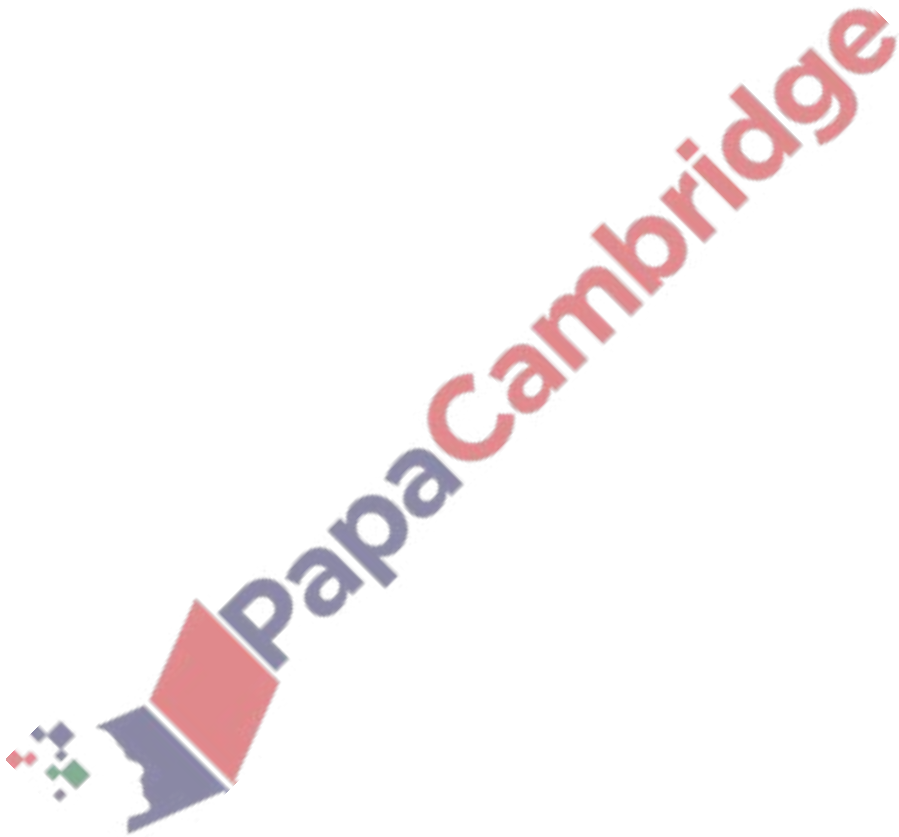
DO NOT USE A CALCULATOR IN THIS QUESTION.

Expand and simplify $\left(\frac{x\sqrt{11}}{2\sqrt{3}-1}\right)^2$, giving your answer with a rational denominator. [4]



DO NOT USE A CALCULATOR IN THIS QUESTION.

Solve the equation $(2 + \sqrt{5})x^2 = 4x + 3(2 - \sqrt{5})$, giving your answers in the form $a + b\sqrt{5}$ where a and b are integers. [5]



DO NOT USE A CALCULATOR IN THIS QUESTION.

Write the expression $\frac{\sqrt{98x^{12}}}{3+\sqrt{2}}$ in the form $(a\sqrt{b}+c)x^d$ where a , b , c and d are integers.

[4]

