Excellence

1. A student says $\sqrt{81}$ is irrational because it has a root sign. Correct? Explain.

2. A student says $0.272727\ldots$ is irrational because it goes on forever. Correct? Explain.

3. A student says $\pi = \frac{22}{7}$. Correct? Explain.

4. Which is greater: $\sqrt{18}$ or 4.3? Show enough working.

5. Which is smaller: $\sqrt{50}$ or 7.1? Explain.

6. Put in ascending order: $3,\ \sqrt{10},\ \pi,\ \sqrt{11}$.

7. Put in descending order: $\sqrt{5},\ 2.3,\ \frac{9}{4},\ \sqrt{6}$.

8. $\sqrt{30}$ lies between which consecutive integers?

9. $\sqrt{70}$ lies between which consecutive integers?

10. Complete: an irrational number is _____ a terminating decimal.

11. Complete: $\sqrt{\square}$ is rational when the number inside is a perfect square.

12. Which does not belong: $\sqrt{9},\ \sqrt{16},\ \sqrt{18},\ \sqrt{25}$

13. Which does not belong: $0.125,\ \frac{1}{8},\ \sqrt{2},\ 2.5$?

14. Is 2π rational or irrational? Give a short reason.

15. Is $\sqrt{3}+1$ rational or irrational? Give a short reason.

16. A square has area 12 cm^2. Its side length is $\sqrt{12}$ cm. Between which two whole cm does it lie?

17. A circle has diameter 1 m. Is circumference π m rational or irrational?

18. Why is 1.414 rational even though it approximates an irrational number?