

Worksheet: Number Systems

NIOS · Class 9 · Mathematics · 20 questions · 48 marks

Name: _____

Date: _____

Score: _____ / 48

Q1. Is 169 rational or irrational? [1 mark]

Q2. Is 0.101001000100001... rational or irrational? [1 mark]

Q3. Will $7/250$ give a terminating or non-terminating decimal? [1 mark]

Q4. Will $11/30$ give a terminating or non-terminating decimal? [1 mark]

Q5. Simplify $48 \cdot 27 + 12$. [1 mark]

Q6. Find $(125)^{2/3}$. [1 mark]

Q7. Simplify $(16)^{3/4}$. [1 mark]

Q8. Insert two rational numbers between $\frac{3}{5}$ and $\frac{4}{5}$. [2 marks]

Q9. Express 0.6 as a fraction. [3 marks]

Q10. Express 1.32 as a fraction (the 32 repeats). [3 marks]

Q11. Rationalise $\frac{1}{5-2}$. [2 marks]

Q12. Rationalise $\frac{3}{3+2}$ and write in simplest form. [3 marks]

Q13. Find the value of $(3+2)(3-2)$. [2 marks]

Q14. Expand $(5+3)^2$. [3 marks]

Q15. Locate 3 on the number line. *[3 marks]*

Q16. If $a = 2 + 3$ and $b = 2 - 3$, find $a^2 + b^2$ and $a \cdot b$. *[4 marks]*

Q17. If $x = 3 + 22$, find $x + 1/x$. *[4 marks]*

Q18. If $2^x = 3^y = 6^z$, prove that $1/x + 1/y = 1/z$. *[4 marks]*

Q19. Prove that $2 + 3$ is irrational. *[4 marks]*

Q20. Find an irrational number between 2 and 3. *[4 marks]*
