

## Worksheet: Number Systems

Maharashtra State Board · Class 9 · Mathematics · 20 questions · 48 marks

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 48

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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