## ©゙doubtnut

## MATHS

## BOOKS - VIDHYASANGAM - RAO'S

## ACADEMY MATHS (KANNADA

## ENGLISH)

## NUMBER SYSTEM

1. Are the square roots of all positive integers
irrational ? If not give an example of the square root of a number that is a rational number

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2. Show that $\sqrt{5}$ can be represented on the number line
3. Rationalise the denominators of the following

1
$9-\sqrt{2}$

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## Exercise 13

1. write the following in decimal form and say
what kind of decimal expansion each has:
$\frac{36}{100}$
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2. write the following in decimal form and say what kind of decimal expansion each has: $\frac{1}{11}$

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3. write the following in decimal form and say what kind of decimal expansion each has:
$4 \frac{1}{8}$
4. write the following in decimal form and say what kind of decimal expansion each has: $\frac{3}{13}$

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5. write the following in decimal form and say what kind of decimal expansion each has:
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6. write the following in decimal form and say what kind of decimal expansion each has: $\frac{329}{400}$

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7. you know that $\frac{1}{7}=0 . \overline{142857}$ can you predict what the decimal expansion of $\frac{2}{7}, \frac{3}{7}, \frac{4}{7}, \frac{5}{7}, \frac{6}{7}$ are without actually doing the long division ? If so how [hint : study the
remainders while finding the value of $\frac{1}{7}$ carefully]

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8. Express the following in the form of $\frac{p}{q}$ where p and q are integers and $q \neq 0$
$0 . \overline{6}$

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9. Express the following in the form of $\frac{p}{q}$ where p and q are integers and $q \neq 0$
$0.4 \overline{7}$

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10. Express the following in the form of $\frac{p}{q}$ where p and q are integers and $q \neq 0$
11. $\overline{001}$

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11. Express 0.9999.... In the form $\frac{p}{q}$ are you surprised by your answer? With your teacher and classmates discuss why the answer makes sense

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12. what can the maximum number of digits be in the repeating block of digits in the decimal expansion of $\frac{1}{17}$ ?
13. Look at several example of rational numbers in the form $\frac{p}{q}$ where p and q are integers with no common factors other than 1 and having terminating decimal representations (expansions) can you guess what property q must satisfy?

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14. write three numbers whose decimal expansions are non-terminating non recuring
15. Find three different irrational number between the rational number $\frac{5}{7}$ and $\frac{9}{11}$

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16. Classify the following numbers as rational or irrational
$\frac{\sqrt{8}}{\sqrt{2}}$

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1. Visualise 3.765 on the number line using successive magnification
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2. Visualise $4 . \overline{26}$ on the number line upto 4 decimal places

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1. Classify the following numbers as rational or irrational

$$
2-\sqrt{5}
$$

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2. Classify the following numbers as rational or
irrational
$(3+\sqrt{23})-\sqrt{23}$
3. Classify the following numbers as rational or irrational
$\frac{2 \sqrt{7}}{7 \sqrt{7}}$
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4. Classify the following numbers as rational
or irrational
1
$\overline{\sqrt{2}}$

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5. Classify the following numbers as rational or irrational
$2 \pi$

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6. Simplify the following expressions:
$(3+\sqrt{3})(2+\sqrt{2})$

## 7. Simplify the following expressions:

$(3+\sqrt{3})(3-\sqrt{3})$

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8. Simplify the following expressions:
$(\sqrt{5}+\sqrt{2})^{2}$

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9. Simplify the following expressions:
$(\sqrt{5}-\sqrt{2})(\sqrt{5}+\sqrt{2})$

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10. Real $\pi$ is defined as the ratio of the circumference (say c) of a circle to its diameter
(say d) i.e $\pi=\frac{c}{d}$ this seems to contradict the
fact that $\pi$ is irrational how will you resolve this contradication?
11. Rationalise the denominators of the
following
$\frac{1}{\sqrt{7}}$

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12. Rationalise the denominators of the
following
1
$\overline{\sqrt{7}-\sqrt{6}}$

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13. Rationalise the denominators of the
following
1
$\sqrt{5}+\sqrt{2}$

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14. Rationalise the denominators of the following
$\frac{1}{\sqrt{7}-2}$

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1. Find
$64^{\frac{1}{2}}$

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2. Find
$32^{\frac{1}{5}}$

- Watch Video Solution

3. Find
$125^{\frac{1}{3}}$

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## 4. Find $9^{\frac{3}{2}}$

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5. Find
$32^{\frac{2}{5}}$

- Watch Video Solution

6. Find
$16^{\frac{3}{4}}$

- Watch Video Solution

7. Find
$125^{-\frac{1}{3}}$

- Watch Video Solution

8. Simplify
$2^{\frac{2}{3}} \cdot 2^{\frac{1}{5}}$

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9. Simplify

1
$\left(3^{3}\right)^{7}$

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## 10. Simplify

$11^{\frac{1}{2}}$
$11^{\frac{1}{4}}$

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11. Simplify
$\left(7^{\frac{1}{2}} \cdot 8^{\frac{1}{2}}\right)$
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[^0]:    2
    11

