



## MATHS

# NCERT - NCERT MATHS (KANNADA ENGLISH)

## **REAL NUMBERS**



**1.** Represent 
$$\frac{5}{3}$$
 and  $-\frac{5}{3}$  on the number line.

**2.** Are the following statements True? Give reasons for your answers with an example.

Every rational number is an integer.

Watch Video Solution

**3.** Are the following statements True? Give reasons for your answers with an example.

Every integer is a rational number

**4.** Are the following statements True? Give reasons for your answers with an example.

Zero is a rational number

Watch Video Solution

5. Find two rational numbers between 3 and 4

by mean method.

6. Express 
$$\frac{7}{16}$$
,  $\frac{10}{7}$  and  $\frac{2}{3}$  in decimal from.  
Watch Video Solution  
7. Express 3.28 in the form of  $\frac{p}{q}$  (where p and q are intgers,  $q \neq 0$ ).  
Watch Video Solution

**8.** Express 1.  $\overline{62}$  in  $\frac{p}{q}$  from where  $q \neq 0, p, q$ 

are integers.



<b>9.</b> Locate $\sqrt{2}$ on number line
<b>O</b> Watch Video Solution
<b>10.</b> Locate $\sqrt{3}$ on number line
Watch Video Solution

**11.** Find any two irrational numbers between  $\frac{1}{5}$  and  $\frac{2}{7}$ .



14. Examine, whether the following numbers are rational or irrational :  $(3 + \sqrt{3})(3 - \sqrt{3})$ Watch Video Solution

**15.** Examine, whether the following numbers

are rational or irrational :

 $\frac{10}{10\sqrt{5}}$ 

16. Examine, whether the following numbers

are rational or irrational :

$$\left(\sqrt{2}+2
ight)^5$$

Watch Video Solution

17. Visualise the representation of  $3.5\overline{8}$  on the number line through successive magnification upto 4 decimal places.



**21.** Simplify the following expressions :

$$\left(3+\sqrt{3}
ight)\left(2+\sqrt{2}
ight)$$



#### 22. Simplify the following expressions :

$$\left(2+\sqrt{3}
ight)\left(2-\sqrt{3}
ight)$$

**23.** Simplify the following expressions :

$$\left(\sqrt{5}+\sqrt{3}\right)^2$$

Watch Video Solution

24. Simplify the following expressions :

$$\left(\sqrt{5}-\sqrt{3}
ight)\left(\sqrt{5}+\sqrt{3}
ight)$$

**25.** Find the square root of 
$$5+2\sqrt{6}$$





#### Watch Video Solution



 $2^{rac{2}{3}}.2^{rac{1}{3}}$ 

Watch Video Solution

#### 30. Simplify

$$\left(5^{\frac{1}{7}}\right)^4$$



 $7^{rac{1}{17}}.11^{rac{1}{17}}$ 



**1.** Represent 
$$\frac{-3}{4}$$
 on the number line.

Watch Video Solution

**2.** Right 
$$0, 7, 10, -4$$
 in  $\frac{p}{q}$  form.

3. Find any five rational numbers between 2

and 3 using mean method.



**5.** Express (i) 
$$\frac{1}{17}$$
 (ii)  $\frac{1}{19}$  in decimal form.

٦





```
9. Simplify :
```

$$(16)^{\frac{1}{2}}$$



**11.** Simplify :

 $(343)^{\frac{1}{5}}$ 

12. Write the following surds in exponential

form

 $\sqrt{2}$ 



#### 13. Write the following surds in exponential

form

 $\sqrt[3]{9}$ 

## 14. Write the following surds in exponential

#### form

 $\sqrt[5]{20}$ 



#### 15. Write the following surds in exponential

form

 $\sqrt[17]{19}$ 



#### 18. Write the surds in radical form:

 $5^{\frac{2}{3}}$ 





**4.** Find the decimal values of the following:

 $rac{1}{5 imes 2}$ 



**5.** Find the decimal values of the following:

 $\frac{3}{10}$ 

**Watch Video Solution** 

**6.** Find the decimal values of the following:

 $\frac{27}{25}$ 



#### **9.** Find the decimal values of the following:

 $\frac{5}{12}$ 



### **10.** Find the decimal values of the following:

 $\frac{1}{7}$ 

Watch Video Solution

**11.** Find the value of  $\sqrt{3}$  upto six decimals.





#### **Think Discuss And Write**

- **1.** Kurthi said  $\sqrt{2}$  can be written  $\frac{\sqrt{2}}{1}$  which is
- in  $rac{p}{q}$  form. So  $\sqrt{2}$  is a rational number. Do you

agree with her argument?

Watch Video Solution

#### Exercise 11

1. (a) Write any three rational numbers



**2.** (b) Explain rational number in your own words.

**3.** Give one example each to the following statements.

i. A number which is rational but not an

integer



**4.** Give one example each to the following statements.

ii. A whole number which is not a natural number

**5.** Give one example each to the following statements.

iii. An integer which is not a whole number



**6.** Give one example each to the following statements.

iv. A number which is natural number, whole

number, integer and rational number.



**7.** Give one example each to the following statements.

v. A number which is an integer but not a natural number.

Watch Video Solution

#### 8. Find five rational numbers between 1 and 2.



11. Express the following rational numbers in

decimal form.

 $\frac{242}{1000}$ 



500



13. Express the following rational numbers in

decimal form.

 $\frac{2}{5}$ 





#### 14. Express the following rational numbers in

decimal form.

 $\frac{115}{4}$ 

**Watch Video Solution** 

#### 15. Express the following rational numbers in

decimal form.

 $\frac{2}{3}$ 



16. Express the following rational numbers in

decimal form.

25

36

Watch Video Solution

#### 17. Express the following rational numbers in

decimal form.

 $\frac{22}{7}$
# 18. Express the following rational numbers in decimal form. $\frac{11}{9}$ Watch Video Solution

- 19. Express each of the following decimals in
- $rac{p}{q}$  form where q
  eq 0 and p, q are integers
- 0.36



20. Express each of the following decimals in

 $rac{p}{q}$  form where q
eq 0 and p, q are integers

15.4



21. Express each of the following decimals in

 $rac{p}{q}$  form where q
eq 0 and p, q are integers

10.25

22. Express each of the following decimals in  $rac{p}{q}$  form where q 
eq 0 and p, q are integers

3.25



# **23.** Express each of the following decimal numbers in $\frac{p}{q}$ form 0. $\overline{5}$







# **25.** Express each of the following decimal numbers in $\frac{p}{q}$ form $0.\overline{36}$

0.36



## 27. Without actually dividing find which of the

following are terminating decimals.



28. Without actually dividing find which of the

following are terminating decimals.

11 18



## 29. Without actually dividing find which of the

following are terminating decimals.

 $\frac{13}{20}$ 



30. Without actually dividing find which of the

following are terminating decimals.

 $\frac{41}{42}$ 



#### Exercise 12

1. Classify the following numbers as rational or

irrational.





# **2.** Classify the following numbers as rational or irrational.

 $\sqrt{441}$ 

Watch Video Solution

# **3.** Classify the following numbers as rational or

irrational.

30.2323342345...



**4.** Classify the following numbers as rational or irrational.

7.484848...

Watch Video Solution

5. Classify the following numbers as rational or

irrational.

11.21132435465



**6.** Classify the following numbers as rational or irrational.

0.3030030003...

Watch Video Solution

7. Give four examples for rational and

irrational numbers?



**9.** Find two irrational numbers between 0.7 and 0.77

Watch Video Solution

**10.** Find the value of  $\sqrt{5}$  upto 3 decimal places.



**11.** Find the value of  $\sqrt{7}$  up to six decimal places by long division method.

Watch Video Solution

# **12.** Locate $\sqrt{10}$ on the number line.

13. Find atleast two irrational numbers
between 2 and 3.
Watch Video Solution

14. State whether the following statements are

true or false. Justify your answers.

(i) Every irrational number is a real number.



15. State whether the following statements are

true or false. Justify your answers.

(ii) Every rational number is a real number.



#### 16. State whether the following statements are

true or false. Justify your answers.

(iii) Every real number need not be a rational

number



17. State whether the following statements are

true or false. Justify your answers.

(iv) n is not irrational if n is a perfect square.



18. State whether the following statements are

true or false. Justify your answers.

(v)  $\sqrt{n}$  is irrational if n is not a perfect square.

19. State whether the following statements are

true or false. Justify your answers.

(vi) All real numbers are irrational.



#### Exercise 13

1. Visualise 2.874 on the number line, using

successive magnification.

**2.** Visualilse 5.  $\overline{28}$  on the number line, upto 3

decimal places.

**Watch Video Solution** 

#### Exercise 14

**1.** Simplify the following expressions.

 $\left(5+\sqrt{7}
ight)\left(2+\sqrt{5}
ight)$ 

2. Simplify.

$$\left(5+\sqrt{5}
ight)\left(5-\sqrt{3}
ight)$$

Watch Video Solution

3. Simplify the following expressions.

$$\left(\sqrt{3}+\sqrt{7}
ight)^2$$

**4.** Simplify the following expressions.

 $\left(\sqrt{11}+\sqrt{7}
ight)\left(\sqrt{11}-\sqrt{7}
ight)$ Watch Video Solution

**5.** Classify the following numbers as rational or irrational.

$$5-\sqrt{3}$$

6. Classify the following numbers as rational or

irrational.

$$\sqrt{3} + \sqrt{2}$$



# 7. Classify the following numbers as rational or

irrational.

$$\left(\sqrt{2}-2
ight)^2$$

# 8. Classify the following numbers as rational or

#### irrational.

$$\frac{2\sqrt{8}}{7\sqrt{8}}$$



# **9.** Classify the following numbers as rational or irrational.

 $4\pi$ 

10. Classify the following numbers as rational

#### or irrational.





**11.** Classify the following numbers as rational or irrational.

$$\left(2+\sqrt{2}
ight)\left(2-\sqrt{2}
ight)$$

**12.** In the following equations, find whether variables x, y, z etc. represent rational or irrational numbers

 $x^2 = 7$ 

Watch Video Solution

**13.** In the following equations, find whether variables x, y, z etc. represent rational or irrational numbers

$$y^2 = 16$$



**14.** In the following equations, find whether variables x, y, z etc. represent rational or irrational numbers

 $z^2=0.02$ 

Watch Video Solution

**15.** In the following equations, find whether variables x, y, z etc. represent rational or

#### irrational numbers

$$u^2 = rac{17}{4}$$

# Watch Video Solution

**16.** In the following equations, find whether variables x, y, z etc. represent rational or irrational numbers

$$w^2 = 27$$

**17.** In the following equations, find whether variables x, y, z etc. represent rational or irrational numbers

 $t^4 = 256$ 

Watch Video Solution

**18.** Every surd is an irrational, but every irrational need not be a surd. Justify your answer.

**19.** Rationalise the denominators of the following:

 $\frac{1}{3+\sqrt{2}}$ 

Watch Video Solution

20. Rationalise:

$$\frac{1}{\sqrt{6}-\sqrt{5}}$$



#### following:





## 22. Rationalise the denominators of the

following:

$$\frac{\sqrt{6}}{\sqrt{3}-\sqrt{2}}$$

**23.** rationalising the denominator:

$$\frac{6-4\sqrt{2}}{6+4\sqrt{2}}$$



# 24. Simplify each of the following by

rationalising the denominator:

$$\frac{\sqrt{7}-\sqrt{5}}{\sqrt{7}+\sqrt{5}}$$

25. rationalising the denominator:



#### 26. rationalising the denominator:

$$\frac{3\sqrt{5}-\sqrt{7}}{3\sqrt{3}+\sqrt{2}}$$

27. Find the value of  $\frac{\sqrt{10}-\sqrt{5}}{2\sqrt{2}}$  upto three decimal places. (take  $\sqrt{2}=1.414$  and  $\sqrt{5}=2.236$ )

Watch Video Solution

**28.** Find:

 $64^{\frac{1}{6}}$ 



#### **30.** Find:

 $625^{rac{1}{4}}$ 





#### **32.** Find:

 $243^{rac{2}{5}}$ 





**35.** If 'a' and 'b' are rational numbers, find the value of a and b in each of the following

equations.

$$rac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}=a+b\sqrt{6}$$

#### Watch Video Solution

**36.** If 'a' and 'b' are rational numbers, find the value of a and b in each of the following equations.

$$rac{\sqrt{5}+\sqrt{3}}{2\sqrt{5}-3\sqrt{3}} = a - b\sqrt{15}$$

**37.** Find the square root of  $11 + 2\sqrt{30}$ 

