



MATHS

NCERT - NCERT MATHEMATICS(BENGALI 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.

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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

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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.
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7. Express 3.28 in the form of $\frac{p}{q}$ (where p and q are intgers, $q \neq 0$).
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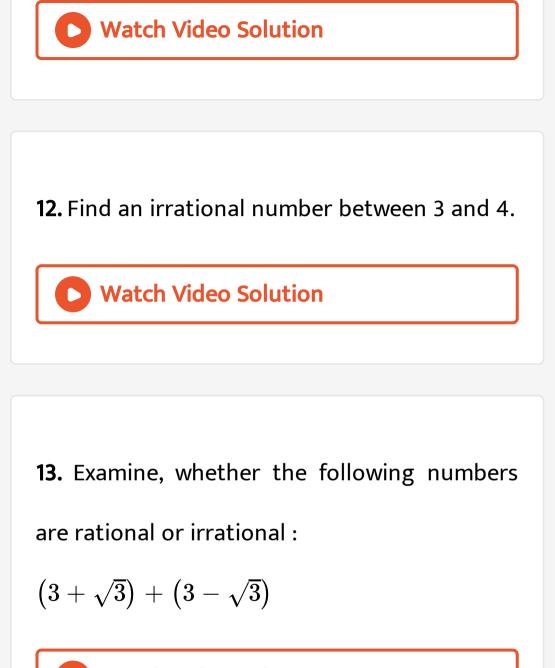
8. Express $1.\ \overline{62}$ in $\ \frac{p}{q}$ form where $q \neq 0, p, q$

are integers.



9. Locate $\sqrt{2}$ on number line
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10. Locate $\sqrt{3}$ on number line
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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 :

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

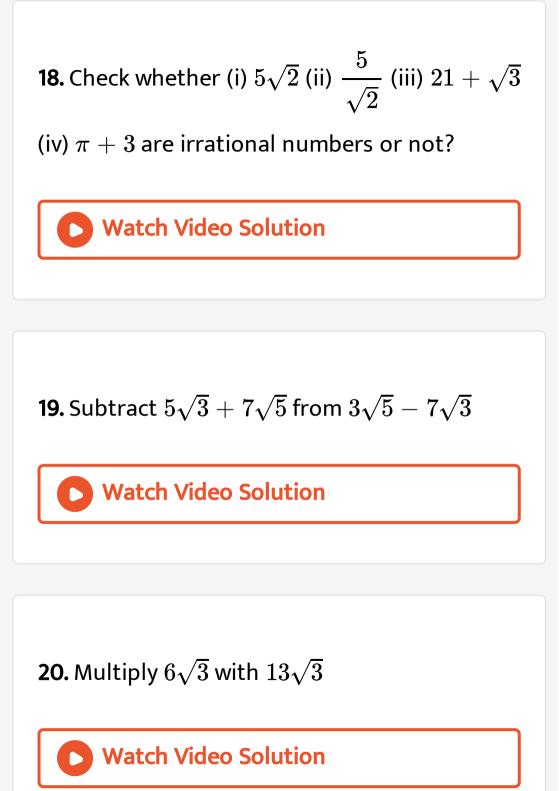
16. Examine, whether the following numbers

are rational or irrational :

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

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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 :

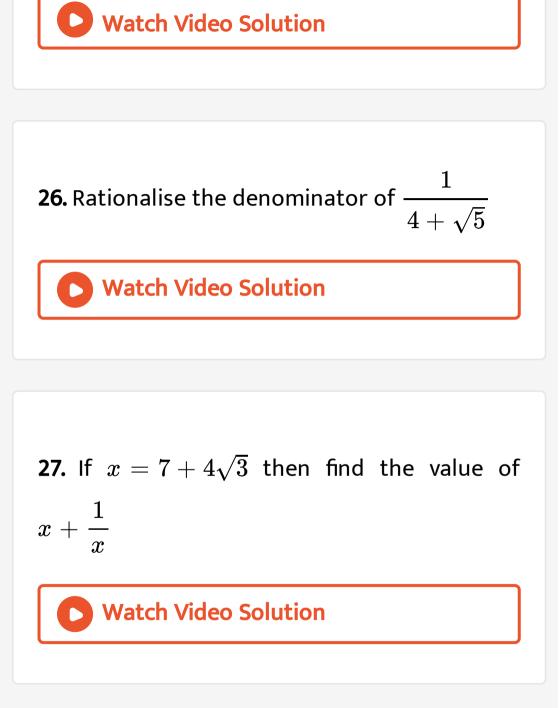
$$\left(\sqrt{5}+\sqrt{2}
ight)^2$$

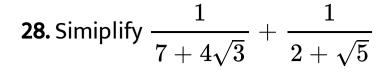
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24. Simplify the following expressions :

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

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





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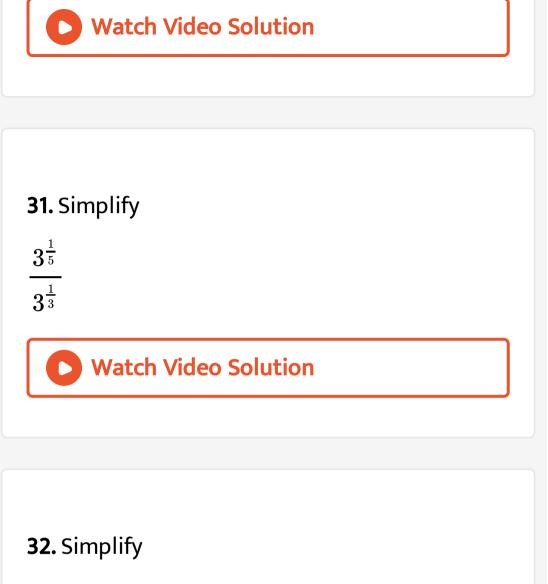


 $2^{rac{2}{3}}.2^{rac{1}{3}}$

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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.

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

3. Guess my number : Your friend chooses an integer between 0 and 100. You have to find out that number by asking questions, but your friend can answer only in 'yes' or 'no'. What strategy would you use?

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4. Find any five rational numbers between 2

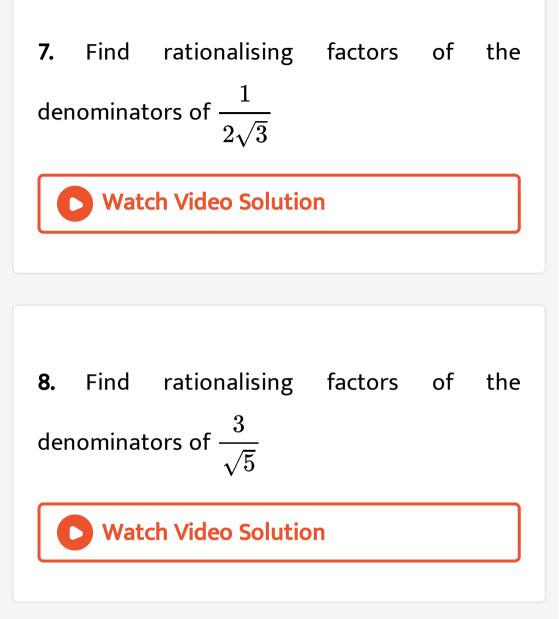
and 3 using mean method.

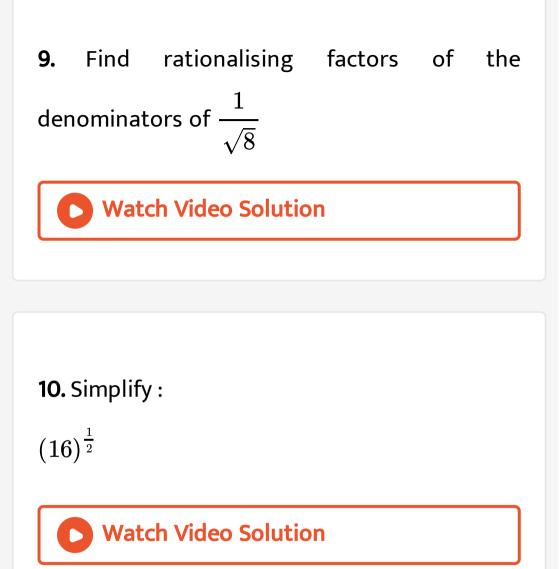
5. Find any 10 rational numbers between

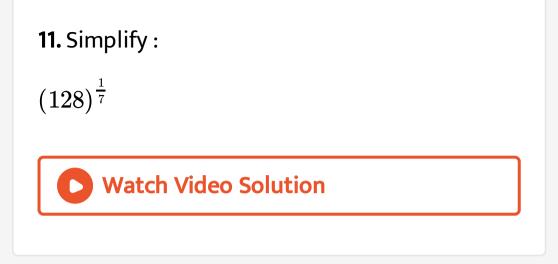
$$-\frac{3}{11}$$
 and $\frac{8}{11}$.

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







12. Simplify :

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

13. Write the following surds in exponential

form

 $\sqrt{2}$



14. Write the following surds in exponential

form

 $\sqrt[3]{9}$

15. Write the following surds in exponential

form

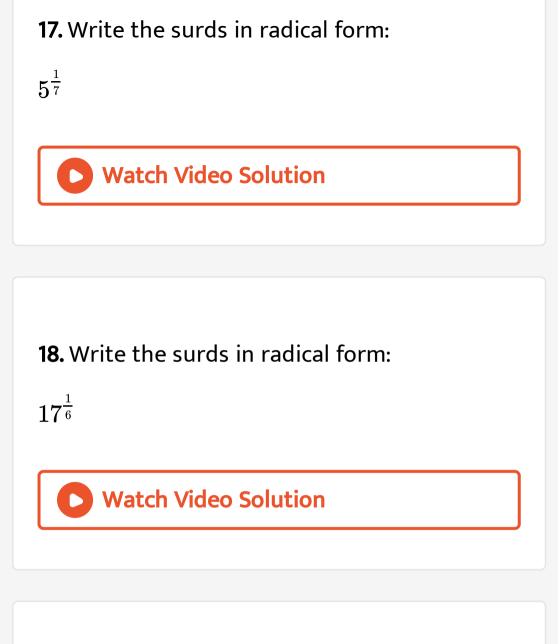
 $\sqrt[5]{20}$



16. Write the following surds in exponential

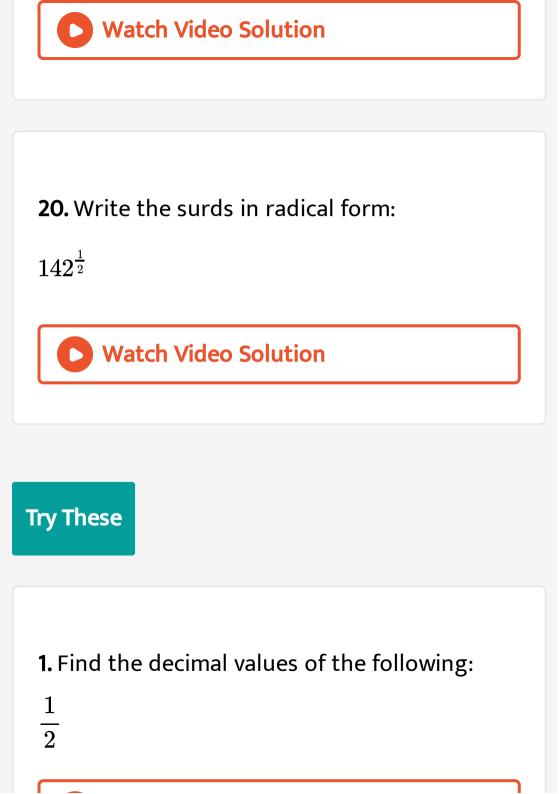
form

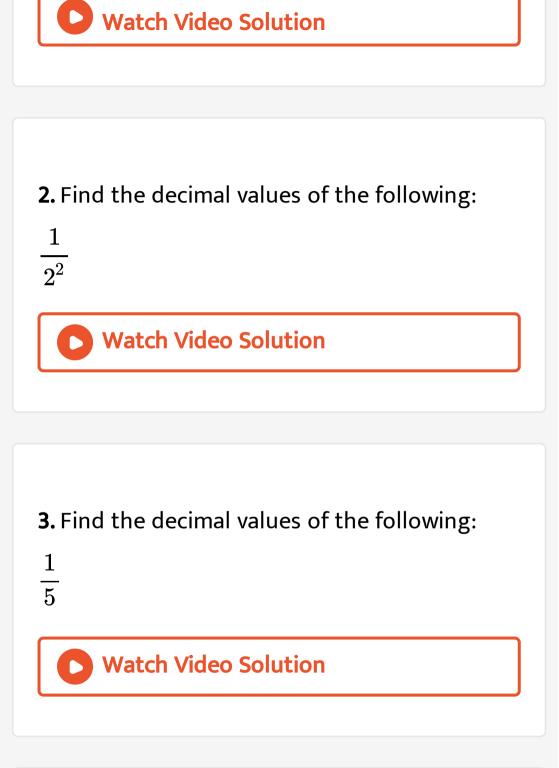
 $\sqrt[17]{19}$



19. Write the surds in radical form:

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





4. Find the decimal values of the following:

 $rac{1}{5 imes 2}$



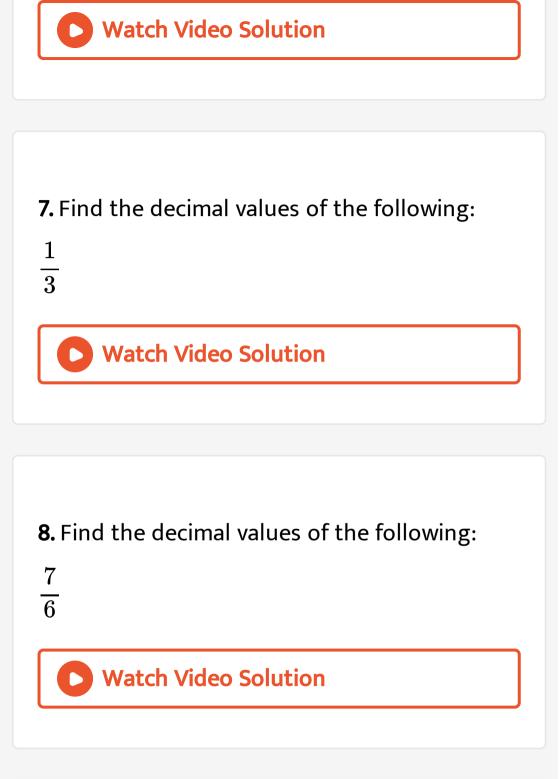
5. Find the decimal values of the following:

 $\frac{3}{10}$

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6. Find the decimal values of the following:

 $\frac{27}{25}$



9. Find the decimal values of the following:

 $\frac{5}{12}$



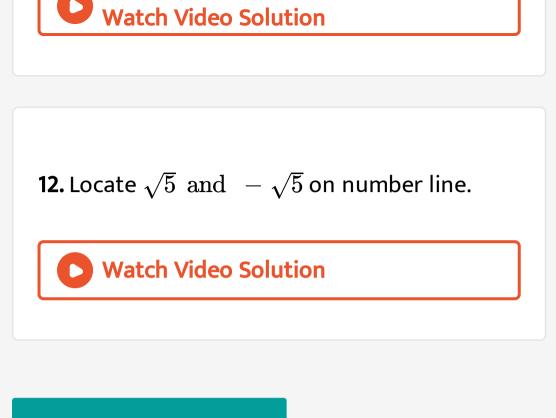
10. Find the decimal values of the following:

 $\frac{1}{7}$

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



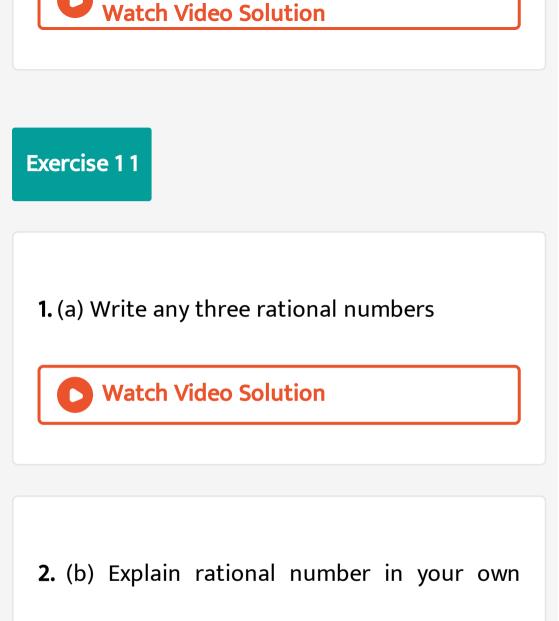


Think Discuss And Write

- **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?





words.

3. Give one example each to the following statements.

i. A number which is rational but not an integer

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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

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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.

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8. Find five rational numbers between 1 and 2.

9. Insert three rational numbers between

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

10. Represent
$$\frac{8}{5}$$
 and $\frac{-8}{5}$ on the number line **Watch Video Solution**

11. Express the following rational numbers in

decimal form.

242

1000



12. Express the following rational numbers in

decimal form.

354

500

13. Express the following rational numbers in

decimal form.

 $\frac{2}{5}$



14. Express the following rational numbers in

decimal form.

 $\frac{115}{4}$

15. Express the following rational numbers in

decimal form.

 $\frac{2}{3}$

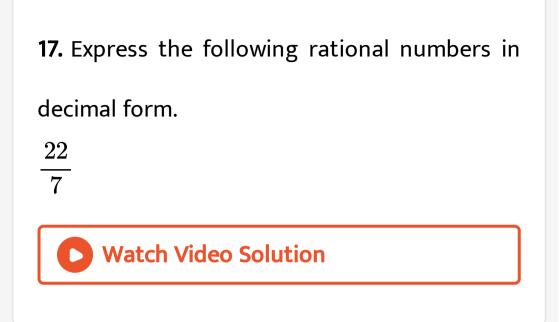


16. Express the following rational numbers in

decimal form.

 $\frac{25}{26}$

36



18. Express the following rational numbers in

decimal form.

 $\frac{11}{9}$



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

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22. Express each of the following decimals in

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

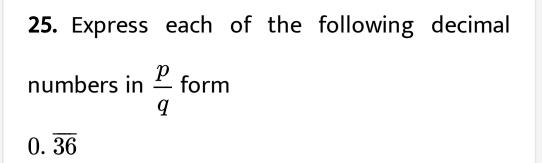
3.25

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



24. Express each of the following decimal numbers in $\frac{p}{q}$ form 3. $\overline{8}$







26. Express each of the following decimal numbers in $\frac{p}{q}$ form $3.127\overline{7}$

27. Without actually dividing find which of the

following are terminating decimals.





28. Without actually dividing find which of the

following are terminating decimals.

 $\frac{11}{18}$

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.

 $\frac{41}{42}$



1. Classify the following numbers as rational or

irrational.



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2. Classify the following numbers as rational or

irrational.





3. Classify the following numbers as rational or irrational.

30.2323342345...

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4. Classify the following numbers as rational or irrational.

7.484848...

5. Classify the following numbers as rational or irrational.

11.21132435465

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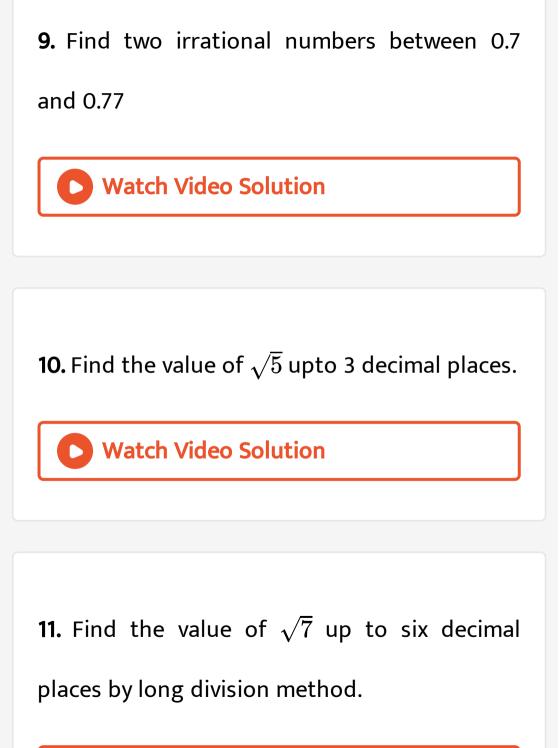
6. Classify the following numbers as rational or irrational.

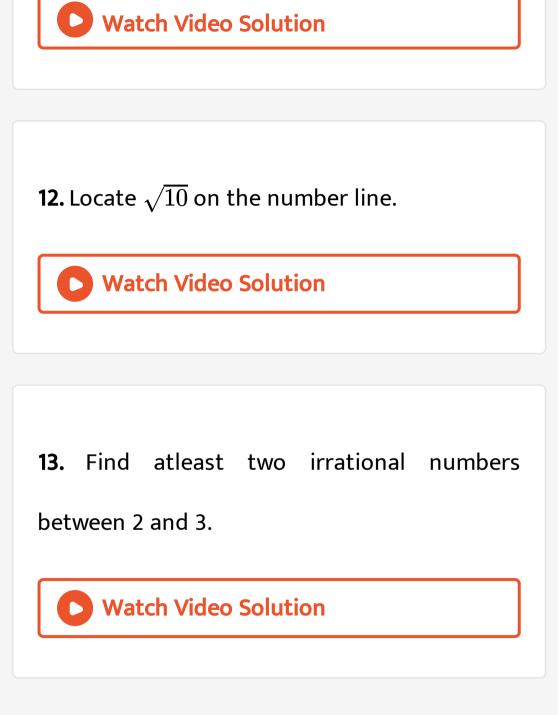
0.3030030003...

7. Give four examples for rational and irrational numbers?

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8. Find an irrational number between $\frac{5}{7}$ and $\frac{7}{9}$. How many more there may be?





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.



1. Visualise 2.874 on the number line, using

successive magnification.

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

decimal places.

1. Simplify the following expressions.

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

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2. Simplify the following expressions.

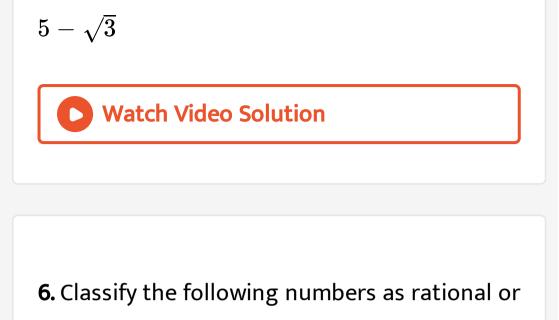
$$\left(5+\sqrt{5}
ight)\left(5-\sqrt{3}
ight)$$

3. Simplify the following expressions.

$$(\sqrt{3} + \sqrt{7})^{2}$$
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4. Simplify the following expressions.
$$(\sqrt{11} + \sqrt{7})(\sqrt{11} + \sqrt{7})$$

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5. Classify the following numbers as rational or irrational.

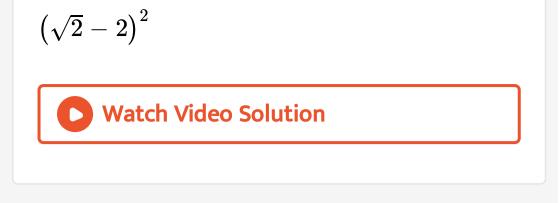


irrational.

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

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7. Classify the following numbers as rational or irrational.



8. Classify the following numbers as rational or

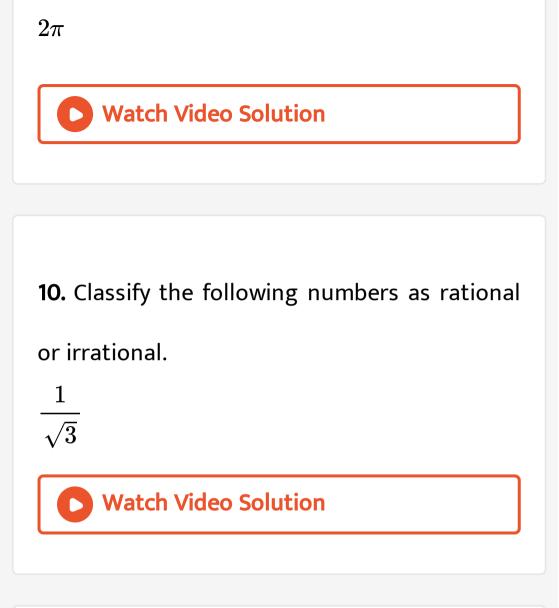
irrational.

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

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9. Classify the following numbers as rational or

irrational.



11. Classify the following numbers as rational or irrational.

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

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

$$x^2 = 7$$

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

 $y^2 = 16$

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

$$z^2=0.02$$



15. In the following equations, find whether variables x, y, z etc. represent rational or irrational numbers $u^2=rac{17}{4}$

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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

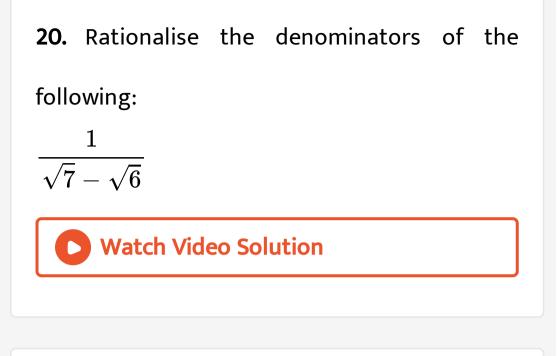
 $t^4 = 256$

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



19. Rationalise the denominators of the following:

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



21. Rationalise the denominators of the

following:



22. Rationalise the denominators of the

following:

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



23. Simplify each of the following by

rationalising the denominator:

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

24. Simplify each of the following by

rationalising the denominator:

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

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25. Simplify each of the following by rationalising the denominator: $\frac{1}{3\sqrt{2}-2\sqrt{3}}$ Watch Video Solution

26. Simplify each of the following by

rationalising the denominator:

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

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

28. Find:

 $64^{rac{1}{6}}$

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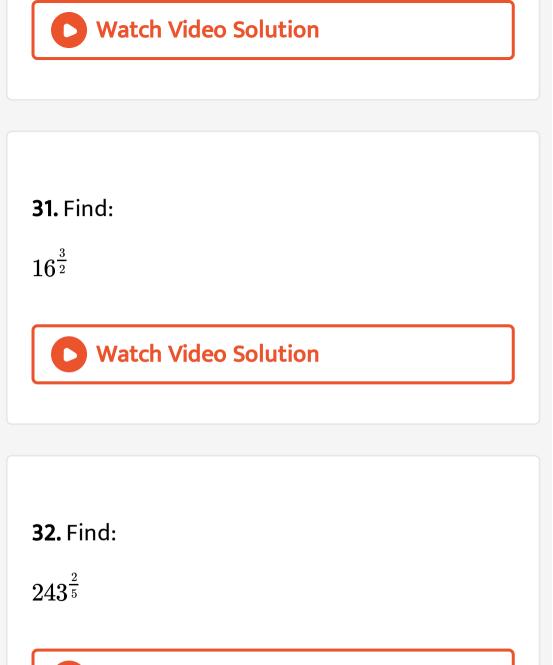
29. Find:

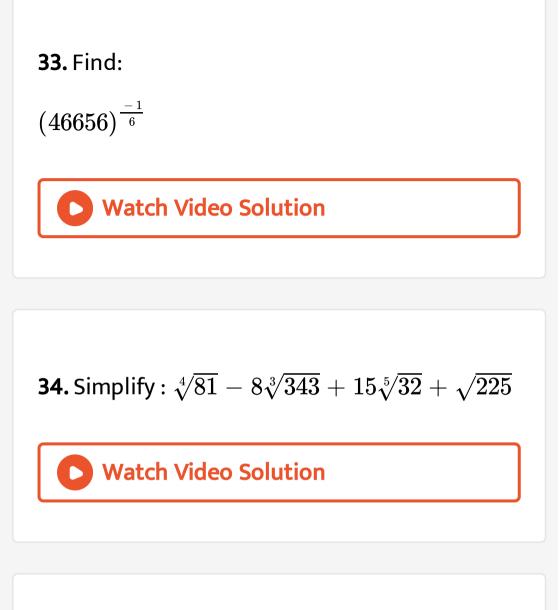
 $32^{rac{1}{5}}$

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30. Find:

 $625^{\frac{1}{4}}$





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

equations.

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

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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 $11 + 2\sqrt{30}$

