

MasterMath

Number Sense

RATIONAL NUMBERS



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Rational Numbers

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Ratio: the teacher to student ratio was 1 teacher to 18 students, or 1 : 18, or $1/18$

Rational Numbers

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A **Rational Number** is any number that can be written as the ratio of two integers.

12 = 24/2 or 12/1, so 12 is a Rational Number

-6 = -6/1, so -6 is a Rational Number

-1/2 = -1/2, so -1/2 is a Rational Number

0 ≠ any ratio of two integers, so it is not rational

Rational Number

A **Rational Number** can be converted to a decimal:

$$\frac{1}{5} = 1 \div 5 = .2$$

A **Rational Number** can be converted to a decimal that is either terminating, or repeating:

Terminating: $\frac{1}{2} = .50000000$

Repeating: $\frac{1}{9} = .11111111111111111111111111111111$
or $.\overline{1}$

For a review of decimals, watch [Fraction – Decimal Equivalency](#)

Rational Number

A **Irrational Number** is a number that cannot be represented as a terminating or repeating decimal.

$\sqrt{2}$ is an Irrational Number:

$$\pi = 3.14159265358979323846264338327950288.....$$

Rational Number

Addition, Subtraction, Multiplication and Division with Rational Numbers follows the same rules as these operations with Integers.

For a review of these rules, re-watch [Adding and Subtracting Integers](#) and [Multiply and Divide Integers](#).

Rational Number

You try it!

Write $1\frac{1}{5}$ in decimal form. Is it a Repeating or Terminal decimal? Is it a Rational Number?

RATIONAL NUMBER

You try it!

Write $1\frac{1}{5}$ in decimal form. Is it a Repeating or Terminal decimal? Is it a Rational Number?

$$1 + \frac{1}{5} = \frac{5}{5} + \frac{1}{5} = \frac{6}{5}$$

$$6 \div 5 = 1.20000$$

Terminal decimal

Rational Number

RATIONAL NUMBER

You try it!

Write this mixed number as a fraction:
1.25

RATIONAL NUMBER

You try it!

Write this mixed number as a fraction:
1.25

$$1.25 = 1 + .25 = 1 + 25/100 = 1 + 1/4 = 1\frac{1}{4}$$

RATIONAL NUMBER

You try it!

Juanita caught a snook that was $3\frac{5}{8}$ feet long. Marcel caught a snook that was $3\frac{7}{12}$ feet long. Whose fish was longer?

RATIONAL NUMBER

You try it!

Juanita caught a snook that was $3 \frac{5}{8}$ feet long. Marcel caught a snook that was $3 \frac{7}{12}$ feet long. Whose fish was longer?

$$3 \frac{5}{8} = 3.625'$$

$$3 \frac{7}{12} = 3.58\bar{3}'$$

$$\begin{array}{r}
 8 \overline{)50} \\
 \underline{48} \\
 20 \\
 \underline{16} \\
 40 \\
 \underline{40} \\
 0
 \end{array}$$

$$\begin{array}{r}
 12 \overline{)70} \\
 \underline{60} \\
 100 \\
 \underline{96} \\
 40 \\
 \underline{36} \\
 4
 \end{array}$$

RATIONAL NUMBERS

You try it!

Your Dad acts like your family bank, and keeps your money for you, and occasionally lends you money. Right now you owe him \$41.35. He lets you wash his car, and agrees to pay you \$15.00 for that. You use that money to reduce your debt to Dad. What's your new balance at the Bank of Dad?

RATIONAL NUMBERS

You try it!

Your Dad acts like your family bank, and keeps your money for you, and occasionally lends you money. Right now you owe him \$41.35. He lets you wash his car, and agrees to pay you \$15.00 for that. You use that money to reduce your debt to Dad. What's your new balance at the Bank of Dad?

$$\begin{array}{r}
 -\$41.35 \\
 +\$15.00 \\
 \hline
 -\$26.35
 \end{array}$$

RATIONAL NUMBERS

You try it!

Mom's car holds 19.5 gallons of gas when full. The tank is now $\frac{2}{3}$ full. How much gas will it take to fill up the tank?

RATIONAL NUMBERS

You try it!

Mom's car holds 19.5 gallons of gas when full. The tank is now $\frac{2}{3}$ full. How much gas will it take to fill up the tank?

$$1 - \frac{2}{3} = \frac{3}{3} - \frac{2}{3} = \frac{1}{3}$$

$$\frac{1}{3} \times 19.5 = \frac{19.5}{3} = 6.5$$

RATIONAL NUMBERS

You try it!

Now, try it on your own. Go to www.MasterMath.info;
download
Rational Numbers
from the Worksheets Page, and test
your skill.


