

dec 15, 2020

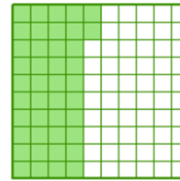
Lesson 10: Understanding Decimals
(Equivalent to Fractions)

Recall: Fractions/Decimals → not a whole number.
→ a certain # of parts with respect to a whole.

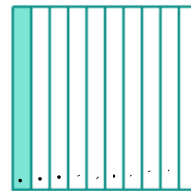
$\frac{42 \text{¢}}{\text{cents}} = 0.42 \text{ \$}$
 $\frac{4 \text{¢}}{\text{cents}} = 0.04 \text{ \$}$

What decimal number is illustrated?

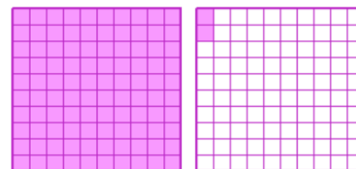
0.42



$\frac{1 \text{ part}}{10 \text{ parts}} \rightarrow 0.1$
 $\frac{1}{10} =$



1.02

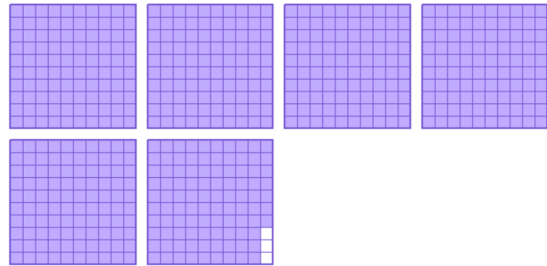


$\frac{2}{100}$

What decimal does the image rep.?

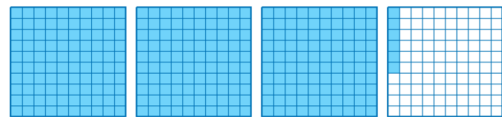
$$\boxed{\$ 5.97}$$

$$\begin{array}{r} 97¢ = 0.97 \\ + \\ 5 \$ \end{array}$$

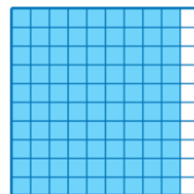


$$\begin{array}{l} 6¢ = \frac{6}{100} \\ = 0.06 \end{array}$$

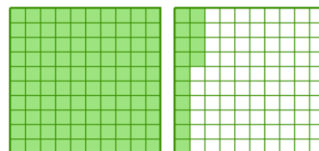
$$\boxed{\$ 3.06}$$



$$0.9 = \frac{90}{100}$$



$$\boxed{1.14}$$



Multiplying Decimals/Numbers by 10/100/1000

move decimal to right →

$$\begin{array}{l}
 12.345 \times 10 = 123.45 \\
 123.45 \times 100 = 12345 \\
 12345 \times 1000 = 12345000
 \end{array}$$

} move decimal to right for each zero

→ ex. $180.00 \times 10 = 1800.00$
 $= 1800$

step 1. Put decimal after last digits and add zeros.

ex. 25.00×100
 2500

0.10000×10000
 10000

Dividing Decimals/Numbers by 10/100/1000

1 2 3 4 5	$\div 10$	=	1 2 3 . 4 5	} move decimal to left for each zero.
1 2 3 4 5	$\div 100$	=	1 2 . 3 4 5	
1 2 3 4 5	$\div 1000$	=	1 . 2 3 4 5	

$\frac{2}{1000} = 0.002$ $\div 1000 = 0.002$ step i. Put decimal after last digit.

step ii. Put zero before decimal and in empty.

$\frac{30}{10} = 3 = 3.0 \div 10$

$0.003 \div 100 = 0.003$

$$\begin{aligned} \text{a) } 308.004 \times 100 &= \dots\dots\dots 30800.4 = 30800.40 = 30800.400 \\ &= 30800.4000 \end{aligned}$$

Rounding → Do it properly and only if necessary

ex. \$1.45

Round to the nearest dollar.

\$1

ex. Round to the nearest tenth.

3.1416

3.1

step i. identify place value

1 2 3 . 4 5 6 → thousandth
 ↓ hundredth
 ↑ tenth

.one
 .whole
 #
 .unit

step ii. look at digit directly to right. if 5 or more, round up

. if less than five, keep
 # same

{5, 6, 7, 8, 9}

{4, 3, 2, 1}

Round to nearest hundredth

i. 49.578

49.58

ii. 30.025

\$ 30.03

\$ 30.0

← Round to the nearest 10th

Round to the nearest thousandth.

i. 0.1999

0.2

note: when 9 "rounds up" it rounds the next number to the left up.

ii. 0.0999

0.099

step i. identify place value

1 2 3 . 4 5 6 → thousandth
 ↓ hundredth
 ↑ tenth

.one
 .whole
 #
 .unit

step ii. look at digit directly to right. if 5 or more, round up

. if less than five, keep
 # same

{5, 6, 7, 8, 9}

{4, 3, 2, 1}

Converting Fraction into Decimals
(w/out calculator)

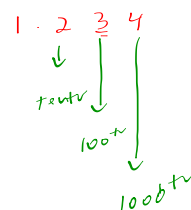
e.x. convert to decimal

$$2 \frac{3}{10}$$

2 and 3 tenths

$$2 + 0.3$$

$$2.3$$



$$4 \frac{3}{100}$$

4 and 3 hundredths

$$4 + 0.03$$

$$4.03$$

$$\frac{3}{100} = 3 \frac{0}{100}$$

$$0.03$$

e.x. convert to a decimal

$$2 \frac{1}{50} \times \frac{2}{2}$$

$$2 \frac{2}{100}$$

$$2.02$$

the same but different form.

Step i. Rewrite fractional part into an equivalent fraction with denominator 10/100/1000

Step ii. Read fraction and numerator in correct position

e.x. convert to a decimal

$$2 \frac{33}{50} \times \frac{2}{2}$$

$$2 \frac{66}{100}$$

$$2.66$$

2 and 0.66

$$\frac{66}{100} = 0.66 \frac{0}{100}$$

$$a \frac{b}{c}$$

$$\frac{b}{c}$$

change