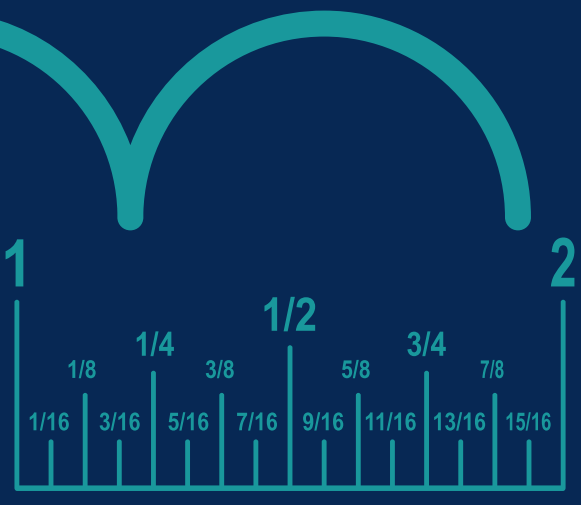
ACADEMY

SEA MATH

DECIMALS



2.2

Decimal Notation
(Base Ten Fractions)

A way to represent fractions using powers of 10 (tenths, hundredths, etc.).

- Example: 0.3 represents 3 tenths, and 0.75 represents 75 hundredths

Convert a decimal to a fraction

Step 1: Use the place value as the denominator:

- Example: 0.75 becomes $\frac{75}{100}$ (hundredths).
- Example: 0.4 becomes $\frac{4}{10}$ (tenths).

Step 2: Simplify the fraction:

Divide both the numerator and denominator by their highest common factor (HCF).

$\frac{75}{100}$ simplifies to $\frac{3}{4}$

$\frac{4}{10}$ simplifies to $\frac{2}{5}$

Try these questions:

Convert the following decimals to fractions:

0.54 = _____	0.61 = _____
0.9 = _____	0.82 = _____
0.8 = _____	0.62 = _____
0.6 = _____	0.49 = _____
0.4 = _____	0.32 = _____
0.2 = _____	0.99 = _____
0.39 = _____	0.9 = _____

Convert a decimal to a percentage

To convert to a percentage, you simply just have to multiply the decimal by 100(move the decimal point 2 place to the right).

Example:

- 0.75 → 0.75 × 100 = 75%
- 0.4 → 0.4 × 100 = 40%

Record Money Values Using Decimals:

Use decimals to represent monetary amounts.

Example:

- $5.50 means 5 dollars and 50 cents.
- $12.50 = 12 dollars and 50 cents.
- $3.75 = 3 dollars and 75 cents.
- $0.99 = 99 cents.

Decimal Expanded Notation

Break down decimal fractions into expanded form:

Example:

- 3.56 = 3 + 0.5 + 0.06 (3 + 5/10 + 6/100).
- 3.48 = 3 + 0.4 + 0.08 (3 + 4/10 + 8/100)
- 5.62 = 5 + 0.6 + 0.02 (5 + 6/10 + 2/100)
- 7.91 = 7 + 0.9 + 0.01 (7 + 9/10 + 1/100)

Decimal Place Values

Ten Thousands	Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths	Ten Thousandths
TTh	Th	H	T	O	t	h	th	tth
10,000	1,000	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1,000}$	$\frac{1}{10,000}$

Above shows the place values before and after a decimal point.

It follows the same order where to the right, the value gets lower and to the left it gets biggger.

Arrange the decimals in ascending order.

5.7	2.78	0.26	1.8	9.23
2.09	0.1	3.45	2.89	3.5
7.15	0.76	0.01	2.8	10.5

Arrange the decimals in descending order.

2.94	0.94	3.24	11.7	9.6
0.57	2.89	5.4	2.09	4.07
3.78	0.8	4.09	2.56	0.76

Round Decimals to the Nearest Whole Number and Tenths:

Approximate decimal numbers by rounding them to the closest whole number or tenth.

Example:

- Round 3.67 to the nearest whole number = 4.
- Round 3.67 to the nearest tenth = 3.7.

Round to the nearest whole number.

1) 1.44 =
2) 6.234 =
3) 36.87 =
4) 19.67 =
5) 91.921 =
6) 15.014 =

Round to the nearest tenth.

1) 45.637 =
2) 9.012 =
3) 15.623 =
4) 9.66 =
5) 91.921 =
6) 593.30 =

Round to the nearest hundredth.

1) 3.215 =
2) 44.444 =
3) 0.009 =
4) 2.3838 =
5) 8.005 =
6) 16.336 =

Round to the nearest thousandth.

1) 0.0091 =
2) 2.9999 =
3) 0.1335 =
4) 60.618 =
5) 8.1234 =
6) 0.196 =

Multiplying a Decimal by a Whole Number

1) Ignore the decimal: First, treat the decimal as a whole number and multiply it by the whole number.

- Example: 0.6 × 4 → Treat it as 6 × 4 = 24.

2) Count the decimal places: Count how many decimal places are in the original decimal number.

- In 0.6, there is 1 decimal place.

3) Place the decimal in the answer: After multiplying, place the decimal in the answer based on the number of decimal places you counted.

- 24 becomes 2.4 (1 decimal place).

Final Answer: 0.6 × 4 = 2.4

5.58 × 5	7.01 × 4	2.56 × 6	8.32 × 6
4.74 × 3	9.71 × 10	5.49 × 7	9.19 × 4
25.0 × 4	31.9 × 8	26.6 × 8	73.3 × 5

Multiplying a Decimal by a Decimal

1) Multiply as if both are whole numbers: Ignore the decimal points and multiply the numbers like regular whole numbers.

- Example: 0.4 × 0.6 → Treat it as 4 × 6 = 24.

2) Count the total decimal places: Count how many total decimal places are in both decimal numbers combined.

- In 0.4 (1 decimal place) and 0.6 (1 decimal place), there are 2 decimal places in total.

3) Place the decimal in the product: After multiplying, place the decimal point in the product so that the total number of decimal places matches the count.

- 24 becomes 0.24 (2 decimal places).

Final Answer: 0.4 × 0.6 = 0.24

FIND THE PRODUCT.

1	7.4 x 2.3	2	2.88 x 16.33	3	15 x 0.73
4	0.89 x 0.53	5	82 x 0.86	6	0.133 x 0.478

Dividing Decimal Fractions by a Whole Number

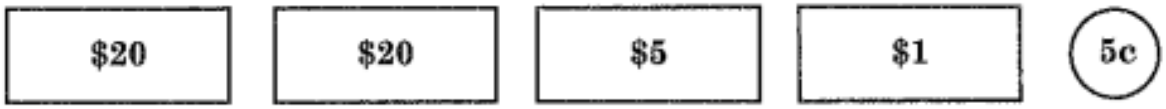
Divide a decimal fraction by a whole number.

Example: 4.56 ÷ 2 = 2.28.

$4\overline{)0.84}$	$2\overline{)0.87}$	$3\overline{)2.7}$	$4\overline{)9.4}$
$5\overline{)0.94}$	$3\overline{)4.6}$	$2\overline{)0.70}$	$4\overline{)8.3}$

TRY THESE QUESTIONS:

1. Write the **total** value of the bills and the coin shown below.



Answer $ _____

2. Karen uses 0.65 metres of cloth to make 1 skirt.

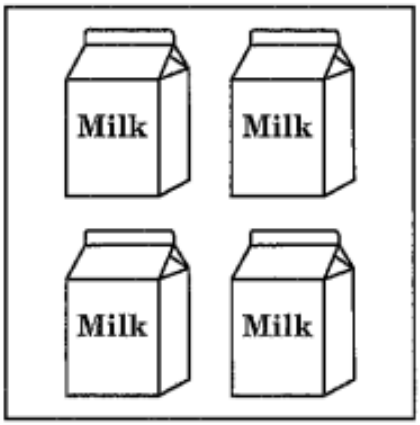
   How many metres of cloth would she need to make 12 similar skirts?

Answer _____ metres (2 marks)

TRY THESE QUESTIONS:

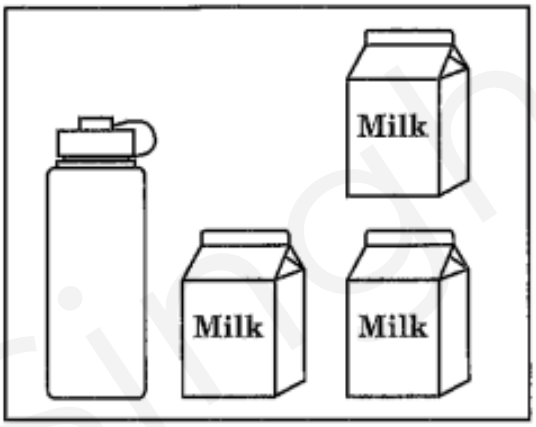
3. Shop A and Shop B sell the same packet of milk. Shop A sells 4 packets of milk for $26.00. Shop B sells 3 packets of milk and a container for $26.00. The price of the container is $3.20.

Shop A



$26.00

Shop B



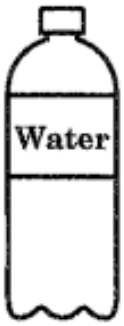
$26.00

What is the **difference** in the price of a packet of milk at Shop A and Shop B?

Answer $ _____ **(3 marks)**

TRY THESE QUESTIONS:

4. Sam bought two of the bottled water shown below. How much change did he receive from $10.00?



$ 4.25

Answer $ _____

TRY THESE QUESTIONS:

5. Write the following numbers in ascending order.

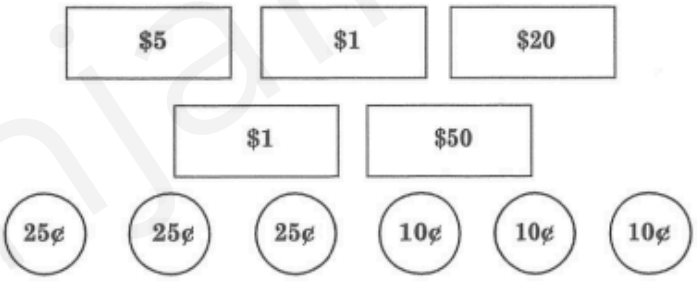
135.9 319.5 53.91 95.31

Answer _____ **(2 marks)**

6. Draw a circle around the 4 that has the value of 4 tenths.

44.44

7. Daniel used the coins and bills below to buy a T-shirt. What was the cost of the T-shirt?



Answer $ _____

TRY THESE QUESTIONS:

8. Complete the bill shown below.

APPLE RESTAURANT

Item	Unit Price	Total
2 Salads	$ _____	$72.00
1 Cheeseburger	$24.00	$24.00
4 Cookies	$0.60	$2.40
Total		$ _____

(2 marks)

9. Jerome has 17.5 m of rope to make swings. Each swing requires 2 m of rope.

How many swings can he make from the rope?

Answer _____ swings **(2 marks)**

TRY THESE QUESTIONS:

10. The incomplete table below shows the times taken by 5 cyclists to complete a race.

Race Times of Cyclists

Cyclist	Jiselle	Cleo	Mison	Nazra	Sue-Ann
Time (in minutes)	34.60	30.45	34.95		30.50

Nazra won the race and was 1.35 minutes faster than the cyclist who placed second.

What was Nazra's time, in minutes?

Answer _____ minutes **(3 marks)**