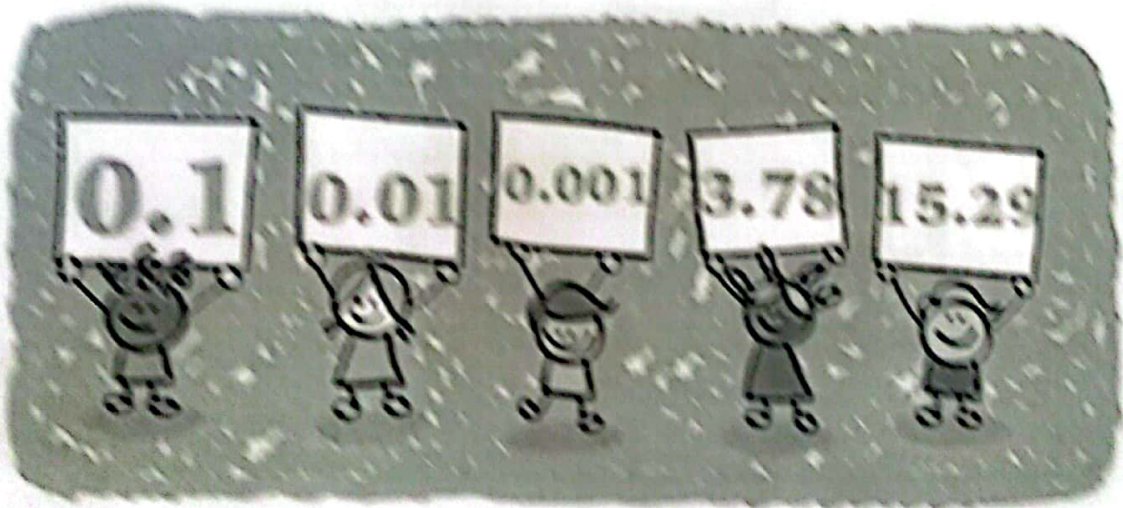


The Primary Stage of Grades (4-5)
School Year 2021-2022

Name: Key
Date: 11

Subject: Math
Grade: 4 CP (C, D, E, F, G)

Decimal BOOKLET

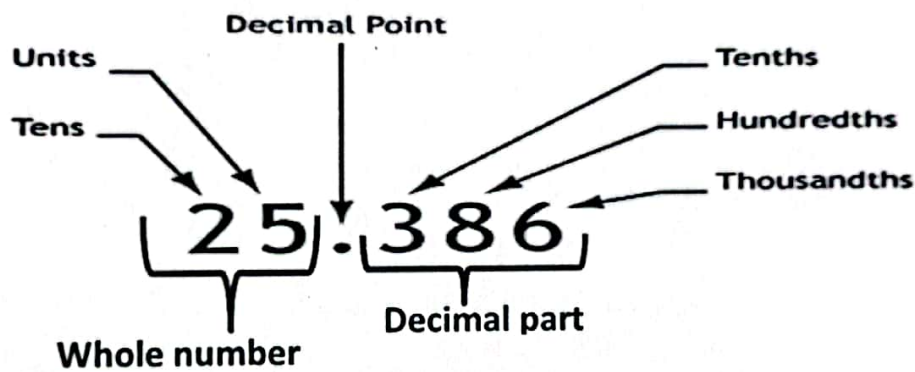


Decimals

Place value chart:

| Whole Number Part | | | | | Decimal Part | | |
|-------------------|----------|------|------|---|--------------|------------|-------------|
| Thousands Family | Ones | | | . | | | |
| Thousand | hundreds | Tens | Ones | . | Tenths | Hundredths | Thousandths |
| | | | | . | | | |

You must memorize it!



Word Form:

How to write 25.386 in the word form?

25.386

Twenty-five and three hundred eighty-six thousandths

OR Twenty-five point three eight six

1) Write the following numbers in words:

a) 57.324

~~fifty seven point three two four~~

OR

fifty seven and three hundred twenty four thousandths

b) 16.22

~~sixteen point two two~~

OR

sixteen and twenty two hundredths.

c) 314.08

~~Three hundred fourteen and eight hundredths~~

OR

Three hundred fourteen point zero eight

d) 200.004

~~Two hundred point zero zero four~~

OR

Two hundred and four thousandths

2) Write the following numbers in figures:

Use the place value chart to help you find the position of each digit and make it easier to solve.

a) $2 \cdot 55$
Two and fifty five hundredths.

2.55

b) Seven hundred thirty one and seventy five hundredths.

731.75

c) Six hundred four and two thousandths.

604.002

d) Forty one and seven tenths.

41.7

e) Ninety point nine one two

90.912

Value and place value:

Place value can be defined as the position or the name of the digit.

The value is how much the digit is worth & it depends on the digits place in a number

Use the **place value chart** to help you find the position of each digit and make it easier to solve.

Write the value and place value of the underline digit:

18 . 3 4 7

| Whole Numbers | | | | | Decimal family | | |
|------------------|----------|------|------|---|----------------|------------|-------------|
| Thousands Family | Ones | | | . | | | |
| Thousand | hundreds | Tens | Ones | . | Tenths | Hundredths | Thousandths |
| | | 1 | 8 | . | 3 | 4 | 7 |
| Value: | | 0 | 0 | . | 0 | 4 | 0 |

Value: 0 . 0 4

Place value: Hundredths

How much it's worth

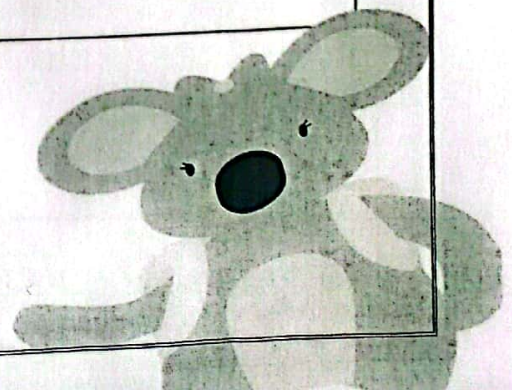
3) Write the value of the underline digit:

| | |
|---|---|
| a) 2.4 <u>7</u> 8 0.07 OR 7 hundredths | b) <u>6</u> 6.001 60 OR 6 Tens |
| c) 17. <u>2</u> 0.2 OR 2 Tenths | d) <u>1</u> 473.907 1000 OR 1 thousand |
| e) 51.99 <u>4</u> 0.004 OR 4 thousandths | f) 84. <u>0</u> 8 0.0 OR Zero tenths |

4) Write the place value of the underline digit:

Name of the digit

| | |
|-------------------------------------|----------------------------------|
| a) 34. <u>8</u> 75 Tenths | b) 55.65 <u>4</u> thousandths |
| c) 10.9 <u>9</u> 2 Hundredths | d) <u>1</u> ,742.907 Hundred |
| e) 88.2 <u>0</u> 7 Hundredths | f) 74.64 <u>1</u> thousandths |
| g) <u>2</u> ,436.25 Ten thousand | h) 22. <u>1</u> 4 Tenths |



Expanded Form:

Writing the number as the sum of the **value** of each digit.

Example: Partition the number 25 . 396 ?

$$25 . 396 = 20 + 5 + 0.3 + 0.09 + 0.006$$

5) Partition the following numbers:

a) 276 . 9

$$200 + 70 + 6 + 0.9 \text{ OR } + \frac{9}{10}$$

b) 63 . 214

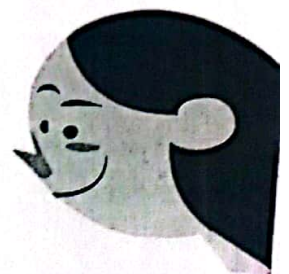
$$60 + 3 + 0.2 + 0.01 + 0.004 \text{ OR}$$
$$60 + 3 + \frac{2}{10} + \frac{1}{100} + \frac{4}{1000}$$

c) 71 . 601

$$70 + 1 + 0.6 + 0.001$$

d) 311 . 04

$$300 + 10 + 1 + 0.04$$



6) Answer the following:

- The digit in the hundredths place in 21.293 is 9
- The digit in the ones place in 74.013 is 4
- The digit in the tenths place in 58.17 is 1
- The digit in the thousandths place in 74.013 is 3
- $\boxed{70,421.08} = 70\,000 + 400 + 20 + 1 + 0.08$
- $9\,837.124 = 9\,000 + \boxed{800} + 30 + 7 + \boxed{0.1} + 0.02 + \boxed{0.004}$

7) Complete the table:

| Words | Standard (figures) | Partition |
|--|-----------------------|--------------------------------|
| Six hundred five point one nine seven | 605.197 | $600 + 5 + 0.1 + 0.09 + 0.007$ |
| Sixty four and eight hundred seventeen thousandths | 64.817 | $60 + 4 + 0.8 + 0.01 + 0.007$ |
| one hundred forty three point eight five | 143.85 | $100 + 40 + 3 + 0.8 + 0.05$ |
| Twenty-three and eight thousandths | 23.008 | $20 + 3 + 0.008$ |

Fraction can be expressed as decimal:

1)

$$3 \frac{1}{5} = 3 \frac{2}{10} = 3.2$$

The diagram shows the conversion of the fraction $3 \frac{1}{5}$ to the decimal 3.2 . Two curved arrows labeled "x2" indicate the multiplication of both the numerator (1 to 2) and the denominator (5 to 10) to create an equivalent fraction $3 \frac{2}{10}$. The final step shows the decimal representation 3.2 , with the whole number 3 placed to the left of the decimal point and the numerator 2 placed to the right of the decimal point.

Place the numerator to the right of the decimal point

One digit after decimal point because denominator is 10

Place the whole number to the left of the decimal

Make equivalent fraction out of 10, 100 or 1000

2)

$$7 \frac{11}{20} = 7 \frac{55}{100} = 7.55$$

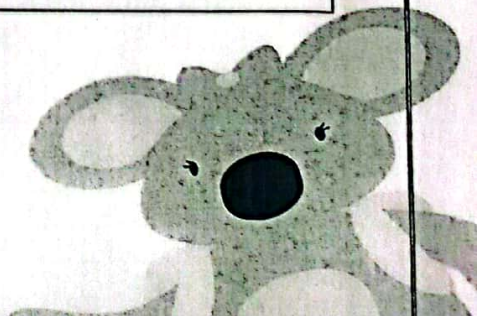
The diagram shows the conversion of the fraction $7 \frac{11}{20}$ to the decimal 7.55 . Two curved arrows labeled "x5" indicate the multiplication of both the numerator (11 to 55) and the denominator (20 to 100) to create an equivalent fraction $7 \frac{55}{100}$. The final step shows the decimal representation 7.55 , with the whole number 7 placed to the left of the decimal point and the numerator 55 placed to the right of the decimal point.

Two decimal places after decimal point because denominator is 100

Place the whole number to the left of the decimal

8) Complete the table:

| Fraction | Decimal | Percentage |
|---|-------------|------------|
| $2 \frac{26}{100}$ | 2.26 | _____ |
| $\frac{44}{100}$ | 0.44 | 44% |
| $\frac{2 \times 4}{25 \times 4} = \frac{8}{100}$ | 0.08 | 8% |
| $\frac{39}{100}$ | 0.39 | 39% |
| $\frac{6}{100}$ | 0.06 | 6% |
| $\frac{7 \times 2}{50 \times 2} = \frac{14}{100}$ | 0.14 | 14% |
| $\frac{8 \times 5}{20 \times 5} = \frac{40}{100}$ | 0.4 0.40 | 40% |



Compare & Order:

- Compare and order between the following numbers:

4.8 / 4.826 / 4.08 / 4.006

STEP 1: Stack the numbers being compared. Line up the decimal points.

4.8
4.826
4.08
4.006

STEP 2: Add zeros so that each number has the same number of decimal digits.

4.800
4.826
4.080
4.006

STEP 3: Compare each place value one by one. If a number is the same, move to the next place.

↓ ↓ ↓ ↓
4.800
4.826
4.080
4.006

STEP 4: Order the numbers from least to greatest or greatest to least. Here, they are ordered from least to greatest.

4.006, 4.080, 4.800, 4.826

Remove the zeros you previously added.

4.006, 4.08, 4.8, 4.826

9) Write ($>$, $<$ or $=$) to make the following statements true.

a) $72.31 > 33.98$

b) $9.57 < 9.61$

c) $23.80 = 23.80$

d) $44.701 < 44.711$

e) $31.01 < 31.10$

f) $34 > 32.14$
 34.00

g) $82.35 < 823.5$

h) $24.006 < 24.060$

10) Order the following numbers starting with the smallest.

$8.600 / 9.100 / 8.314 / 8.630 / 8.316$

1st: make same # of digits after decimal point

→ $8.314 / 8.316 / 8.600 / 8.630 / 9.100$

$12.10 / 9.30 / 9.05 / 12.16 / 9.37$

→ $9.05 / 9.30 / 9.37 / 12.10 / 12.16$

$28\% = \frac{28}{100} = \frac{4 \times 7}{4 \times 25}$ / 70% / 0.7 / 2.43 / 32% *make all fractions out of 100*

→ $28\% > 32\% > 70\% > 2.43$
1st write the greatest.

Labeling on number line:

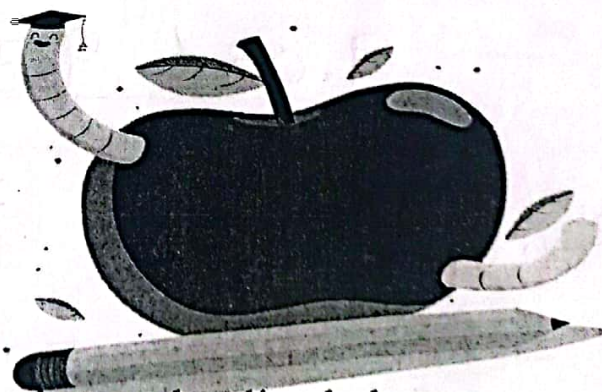
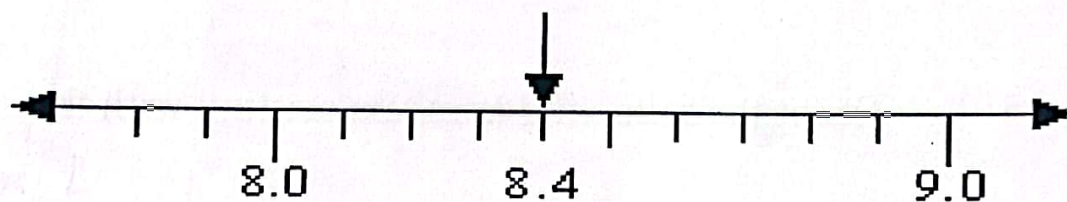
To represent a decimal on a number line, divide each segment of the number line into ten equal parts.

example: label 8.4 on a number line.

To represent 8.4 on number line, it will be between 8 and 9

Jump 4 jumps, so you will reach 8.4

The arrow is four parts to the right of 8.

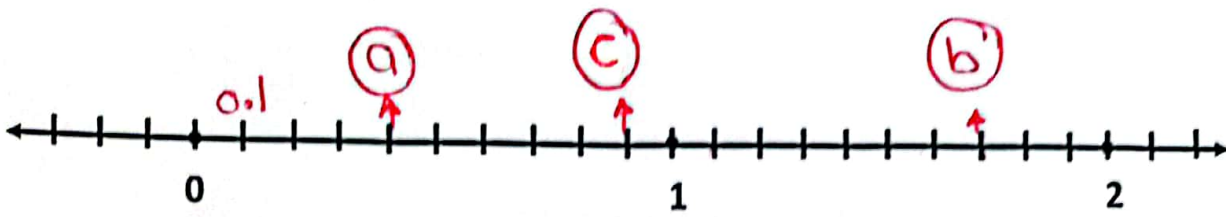


11) Label the following numbers on the number line below:

a) 0.4

b) 1.7

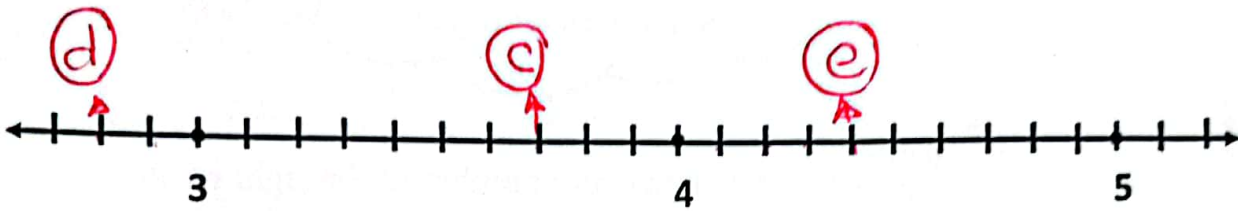
c) 0.9



c) 3.7

d) 2.8

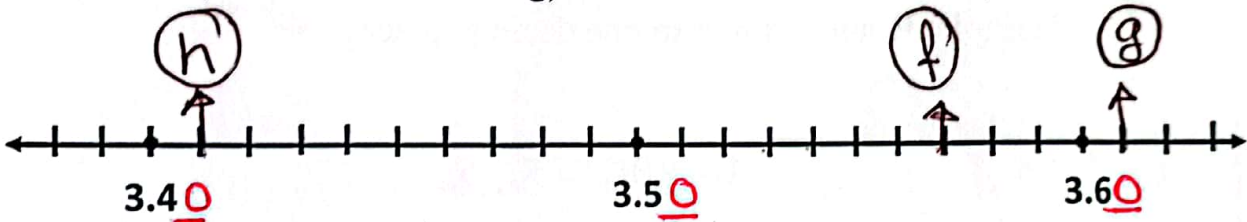
e) 4.4



f) 3.57

g) 3.61

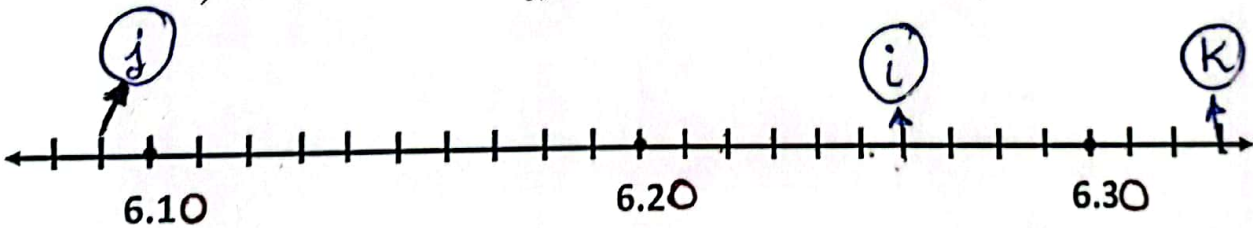
h) 3.41



i) 6.26


j) 6.09

k) 6.33




Rounding:

- How to round decimal numbers?


Step 1  Underline the digit in the place value that you are rounding to.

Step 2  Look next door:


5 and more add one more
4 and less let it rest

Step 3  Change every number to the right of the underline number to zero

Example: Round 34.818 to one decimal place?


 $34.\underline{8}18 = 34.800 = 34.8$

Example: Round 34.818 to nearest whole number?

 +1
 $3\underline{4}.818 = 35.000 = 35$

12) Complete the table by rounding the following numbers:


| | To the nearest 100 | To the nearest <u>whole number</u> | To one decimal <u>place</u> |
|--------------------------|--------------------|------------------------------------|---------------------------------------|
| <u>5</u> 47.3 <u>4</u> 5 | 500 | <u>547</u> | 547. <u>3</u> |
| <u>2</u> 89.58 | 300 | 289.5 290 | 289.6 |
| 99.95 | 100 | 99.95 100 | 100.0 ^{1.1} 99.95 |
| 661.021 | 700 | 661 | 661.0 |
| 147.647 | 100 | 148 | 147.6 |
| 33.142 | 0 | 33 | 33.1 |
| 9 <u>4</u> 23.001 | 9400 | 9,423 | 9423.0 |
| <u>1</u> 55.992 | 200 | 156 | 155.992 156.0 |
| 301.204 | 300 | 301 | 301.2 |




Adding and Subtracting:

Example: $13.7 + 5.34 =$

Two rules must be applied:

Rule 1  The decimal points must be lined up before adding or subtracting any decimal numbers.

Rule 2  Add place holder zeros to help.

$$\begin{array}{r} 13.70 \\ + 05.34 \\ \hline 18.04 \end{array}$$



13) Solve the following:

a)
$$\begin{array}{r} \textcircled{1} \\ 2.1 \\ + 3.9 \\ \hline 6.0 \end{array}$$

b)
$$\begin{array}{r} 4 \\ \cancel{5}.13 \\ - \cancel{3}.7 \\ \hline 1.6 \end{array}$$

c)
$$\begin{array}{r} \textcircled{1} \\ 4.8 \\ + 3.6 \\ \hline 8.4 \end{array}$$

d)
$$\begin{array}{r} \textcircled{1} \\ 2.9 \\ + 5.4 \\ \hline 8.3 \end{array}$$

e)
$$\begin{array}{r} 5 \\ \cancel{6}.15 \\ - \cancel{4}.9 \\ \hline 1.6 \end{array}$$

f)
$$\begin{array}{r} 6 \\ \cancel{7}.14 \\ - \cancel{5}.9 \\ \hline 1.3 \end{array}$$

| | |
|--|--|
| - | + |
| g) Difference of 21 and 8.7 | h) Sum of 3.5 and 7 |
| $\begin{array}{r} 10 \\ 21.00 \\ - 8.70 \\ \hline 12.30 \end{array}$ | $\begin{array}{r} 3.5 \\ + 7.0 \\ \hline 10.5 \end{array}$ |

14) Fill in the boxes with the correct numbers to make the following statements true:

a) $1.42 + \boxed{5.02} = 6.44$

$$\begin{array}{r} 6.44 \\ - 1.42 \\ \hline 5.02 \end{array}$$

b) $6.74 - \boxed{3.5} = 3.24$

$$\begin{array}{r} 6.74 \\ - 3.24 \\ \hline 3.50 \end{array}$$

c) $1 - \boxed{0.57} = 0.43$

$$\begin{array}{r} 1.00 \\ - 0.57 \\ \hline 0.43 \end{array}$$

d) $\boxed{0.57} + 0.68 = 1.25$

$$\begin{array}{r} 1.25 \\ - 0.68 \\ \hline 0.57 \end{array}$$

e) $8.3 + \boxed{4.76} = 13.06$

$$\begin{array}{r} 13.06 \\ - 8.30 \\ \hline 4.76 \end{array}$$

f) $\boxed{7.82} - 4.5 = 3.32$

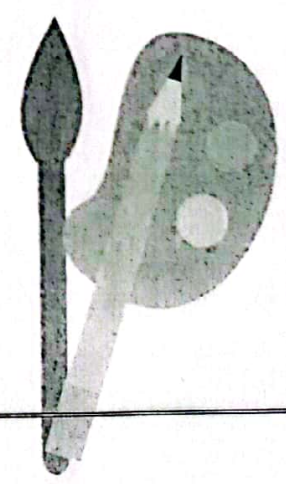
$$\begin{array}{r} 7.82 \\ - 4.50 \\ \hline 3.32 \end{array}$$

e) $0.34 + \boxed{0.66} = 1$

$$\begin{array}{r} 1.00 \\ - 0.34 \\ \hline 0.66 \end{array}$$

f) $3.2 + \boxed{6.8} = 10$

$$\begin{array}{r} 10.00 \\ - 3.2 \\ \hline 6.8 \end{array}$$



Double and Half:

- To double a number:

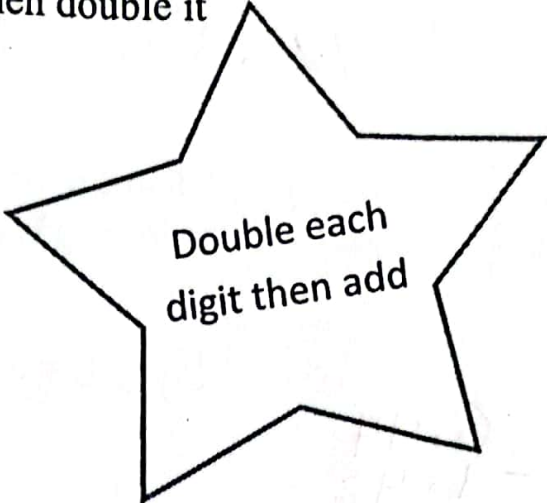
First you have to partition the number then double it

Example: Double 4.61?

$$\text{Partition} = 4 + 0.6 + 0.01$$

$$\text{Double} = 8 + 1.2 + 0.02$$

$$\text{Answer} = 9.22$$



Double each
digit then add

- To half a number:

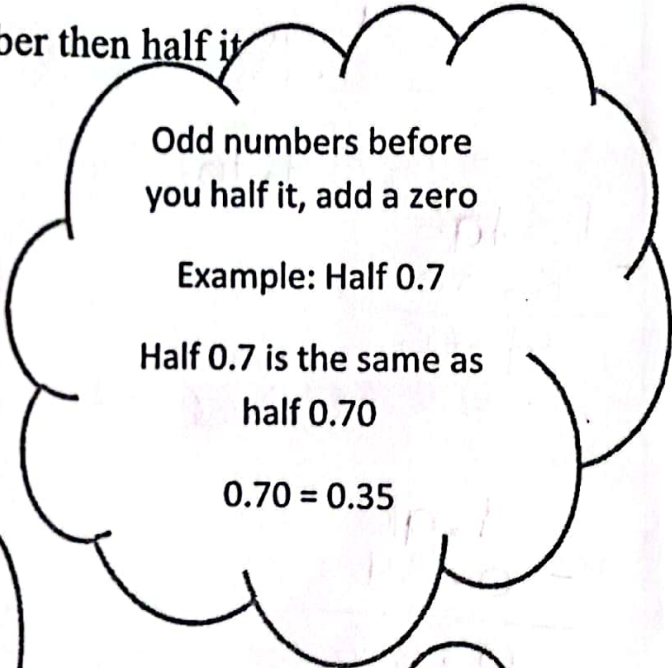
First you have to partition the number then half it

Example: half 8.42?

$$\text{Partition} = 8 + 0.4 + 0.02$$

$$\text{half} = 4 + 0.2 + 0.01$$

$$\text{Answer} = 4.21$$



Odd numbers before
you half it, add a zero

Example: Half 0.7

Half 0.7 is the same as
half 0.70

$$0.70 = 0.35$$



Half:

$$10 = 5$$

$$30 = 15$$

$$50 = 25$$

$$70 = 35$$

$$90 = 45$$



15) Complete the following table:

| | Half | Number | Double |
|----|--|---|---|
| 1) | $\begin{matrix} \text{half} \\ \swarrow \\ 4.2 \\ \searrow \\ 2.1 \end{matrix}$ $\begin{matrix} \text{half} \\ \swarrow \\ 4.2 \end{matrix}$ | 4.2 | $\begin{matrix} d \\ \swarrow \\ 4.2 \\ \searrow \\ 8.4 \end{matrix}$ |
| 2) | $15 + 1 + 0.2 + 0.01$ 16.21 | $60 + 4 + 0.8 + 0.02$ $30 + 2 + 0.4 + 0.01$ 32.42 | 64.84 |
| 3) | $\begin{matrix} \text{half } 70+ \\ 4 \quad 8 \end{matrix}$ 4.35 | 8.70 | $8.7 + 8.7 =$ 17.4 |
| 4) | 3.25 $\text{double } 25 \Rightarrow 50$ $\text{" } 3 \Rightarrow 6$ | 6.50 | $\text{double } 0.5 = 1$ $\text{" } 6 = 12$ |
| 5) | $\text{half } 14 = 7$ then $[0.7]$ drop decimal | 1.4 | 2.8 |

OR partition: $\begin{matrix} \text{half} \\ \swarrow \\ \text{half} \end{matrix}$

half $\begin{matrix} 60 + 4 + 0.8 + 0.02 \\ \swarrow \\ 30 + 2 + 0.4 + 0.01 = 32.41 \end{matrix}$

Multiplying and Dividing:

Multiplying by 10, 100 and 1000:

When the multiplier is 10, 100 or 1000, we move the **decimal point to the right** by as much as zeros after the 1 in the multiplier.

Example: $8.597 \times 10 = 85.97$
 $8.597 \times 100 = 859.7$
 $8.597 \times 1000 = 8597.0$

The number is getting larger



Dividing by 10, 100 and 1000:

When the multiplier is 10, 100 or 1000, we move the **decimal point to the left** by as much as zeros after the 1 in the multiplier.

Example: $573.1 \div 10 = 57.31$
 $573.1 \div 100 = 5.731$
 $573.1 \div 1000 = 0.5731$

The number is getting smaller



16) Find the following:

move decimals
② steps forward

a) $5.67 \times 100 = 567$

move decimal
① step back

b) $7.67 \div 10 = 0.767$

c) $27.3 \div 100 = 0.273$

d) $5.3 \times 100 = 530$

e) $12.36 \times 1000 = 12360$

f) $26.8 \div 100 = 0.268$

g) $8.9 \times 100 = 890$

h) $19 \div 1000 = 0.019$

17) Fill in the missing numbers:

a) $1.23 \times 100 = 123$

b) $413 \div 1000 = 0.413$

c) $155.3 \div 100 = 1.553$
2 steps back

d) $7.8 \times 1000 = 7800$
 $7800 \div 1000 = 7.8$
inverse operation

e) $10 \times 8.74 = 87.4$

$87.4 \div 10 = 8.74$

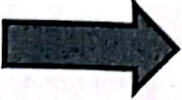
f) $39.9 \div 10 = 3.99$

$3.99 \times 10 = 39.9$

Multiplying & Dividing Decimals:

Step 1  Remove any decimal places

Step 2  Multiply / Divide as normal

Step 3  Put back the same number of decimal places
in the answer

Example 1: $23 \times 0.4 =$

$$23 \times 4 = 92$$

$$\text{Answer} = 9.2$$

The question has only **one decimal place** So Answer will have one decimal place

Example 2: $1.2 \times 0.2 =$

$$12 \times 2 = 24$$

$$\text{Answer} = 0.24$$

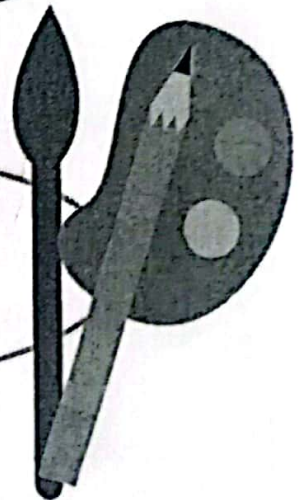
The question has only **two decimal places** So Answer will have one decimal place

Example: $5.6 \div 8 =$

$$56 \div 8 = 7$$

$$\text{Answer} = 0.7$$

The question has only **one decimal place** So Answer will have one decimal place



18) Solve the following:

$$a) 4.8 \div 6 = 0.8$$

$48 \div 6 = 8$ then put decimal according to # of digits

$$b) 2.8 \div 4 = 0.7$$

$$28 \div 4 = 7$$

$$c) 0.63 \div 7 = 0.09$$

$$63 \div 7 = 9$$

$$d) 1.6 \div 4 = 0.4$$

$$16 \div 4 = 4$$

$$e) 0.81 \div 9 = 0.09$$

$$81 \div 9 = 9$$

$$f) 3.5 \div 7 = 0.5$$

$$35 \div 7 = 5$$

$$g) 0.032 \div 8 = 0.004$$

③

③

$$32 \div 8 = 4$$

$$h) 0.042 \div 6 = 0.007$$

$$42 \div 6 = 7$$

i) Find the quotient of 0.18 and 3

$$0.18 \div 3 = 0.06$$

$$18 \div 3 = 6$$

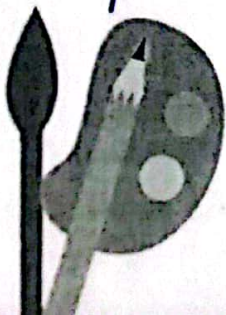
j) Find the quotient of 0.24 and 6

$$0.24 \div 6 = 0.04$$

$$24 \div 6 = 4$$

19) Solve the following:

| | |
|--|--|
| <p>a) $28 \times 0.3 =$</p> $\begin{array}{r} 28 \\ \times 3 \\ \hline 84 \end{array}$ <p>8.4</p> | <p>b) $5.4 \times 0.7 =$</p> $\begin{array}{r} 54 \\ \times 7 \\ \hline 378 \end{array}$ <p>then count # of digits after decimals</p> <p>3.78</p> |
| <p>c) $0.4 \times 8.5 =$</p> $\begin{array}{r} 4 \\ \times 85 \\ \hline 340 \end{array}$ <p>3.40</p> | <p>d) $45 \times 0.5 =$</p> $\begin{array}{r} 45 \\ \times 5 \\ \hline 225 \end{array}$ <p>22.5</p> |
| <p>e) $3.7 \times 1.2 =$</p> $\begin{array}{r} 37 \\ \times 12 \\ \hline 74 \\ 370 \\ \hline 444 \end{array}$ <p>4.44</p> | <p>f) $0.31 \times 0.93 =$</p> $\begin{array}{r} 31 \\ \times 93 \\ \hline 93 \\ 2790 \\ \hline 2883 \end{array}$ <p>0.2883</p> |
| <p>g) $6.6 \times 2.4 =$</p> $\begin{array}{r} 66 \\ \times 24 \\ \hline 264 \\ 1320 \\ \hline 1584 \end{array}$ <p>15.84</p> | <p>h) $9.1 \times 3.7 =$</p> $\begin{array}{r} 91 \\ \times 37 \\ \hline 637 \\ 2730 \\ \hline 3367 \end{array}$ <p>33.67</p> |
| <p>i) Find product of 7.5 and 6.2</p> $\begin{array}{r} 75 \\ \times 62 \\ \hline 150 \\ 4500 \\ \hline 4650 \end{array}$ <p>46.50</p> | <p>j) Find product of 2.2 and 8.4</p> $\begin{array}{r} 84 \\ \times 22 \\ \hline 168 \\ 1680 \\ \hline 1848 \end{array}$ <p>18.48</p> |



20) Solve the following:

- a) The weight of a box is 3.7 kg.
what will be the weight of 18 boxes?

$$3.7 \times 18 = 66.6 \text{ Kg}$$

weight of 18 boxes

$$\begin{array}{r} 37 \\ \times 18 \\ \hline 296 \\ + 370 \\ \hline 666 \end{array}$$

- b) Jan had \$ 20. He bought a board game for \$8.49 and
a book for \$3.25. How much money does he have left?

$$\begin{array}{r} 8.49 \\ + 3.25 \\ \hline \$11.74 \end{array}$$

he paid
in Total

$$\begin{array}{r} \cancel{20.00} \\ - 11.74 \\ \hline \$8.26 \end{array}$$

left

- c) Lily bought 6 boxes of pens each cost \$12.4 if she gave \$100 to
the shopkeeper. How much does she get in change?

$$6 \times 12.4 = \$74.4 \text{ cost}$$

of 6 boxes

$$\begin{array}{r} 124 \\ \times 6 \\ \hline 744 \end{array}$$

$$100 - 74.4 = \$25.60$$

$$\begin{array}{r} \cancel{100.00} \\ - 74.40 \\ \hline 25.60 \end{array}$$

she gets in change

d) Sara run 5.85 miles each day for 9 days.
How many miles did she run altogether?

5.85 x 9 = 52.65
miles she ran
in total

$$\begin{array}{r} \textcircled{7} \textcircled{4} \\ 585 \\ \times \quad 9 \\ \hline 5265 \end{array}$$

e) Mary and John are the fastest runners in the school. Mary's best record for running a mile is 9.5 minutes and John's is 6.72 minutes. What is the difference in their records?

9.5 - 6.72 = 2.78
min the
difference

$$\begin{array}{r} 89.510 \\ - \quad 6.72 \\ \hline 2.78 \end{array}$$

f) Nicole and David want to buy a Mother's Day present for their mom. They found a purse for \$55.99. Nicole has \$32.8 and David has \$15.9 saved.

How much more money do they need in order to buy the purse for their mom?

$$\begin{array}{r} \textcircled{1} \\ + \quad 15.9 \\ + \quad 32.8 \\ \hline \$ 48.7 \end{array}$$

they have together

$$\begin{array}{r} 455.99 \\ - \quad 48.70 \\ \hline \$ 7.29 \end{array}$$

they need more
to buy the
purse