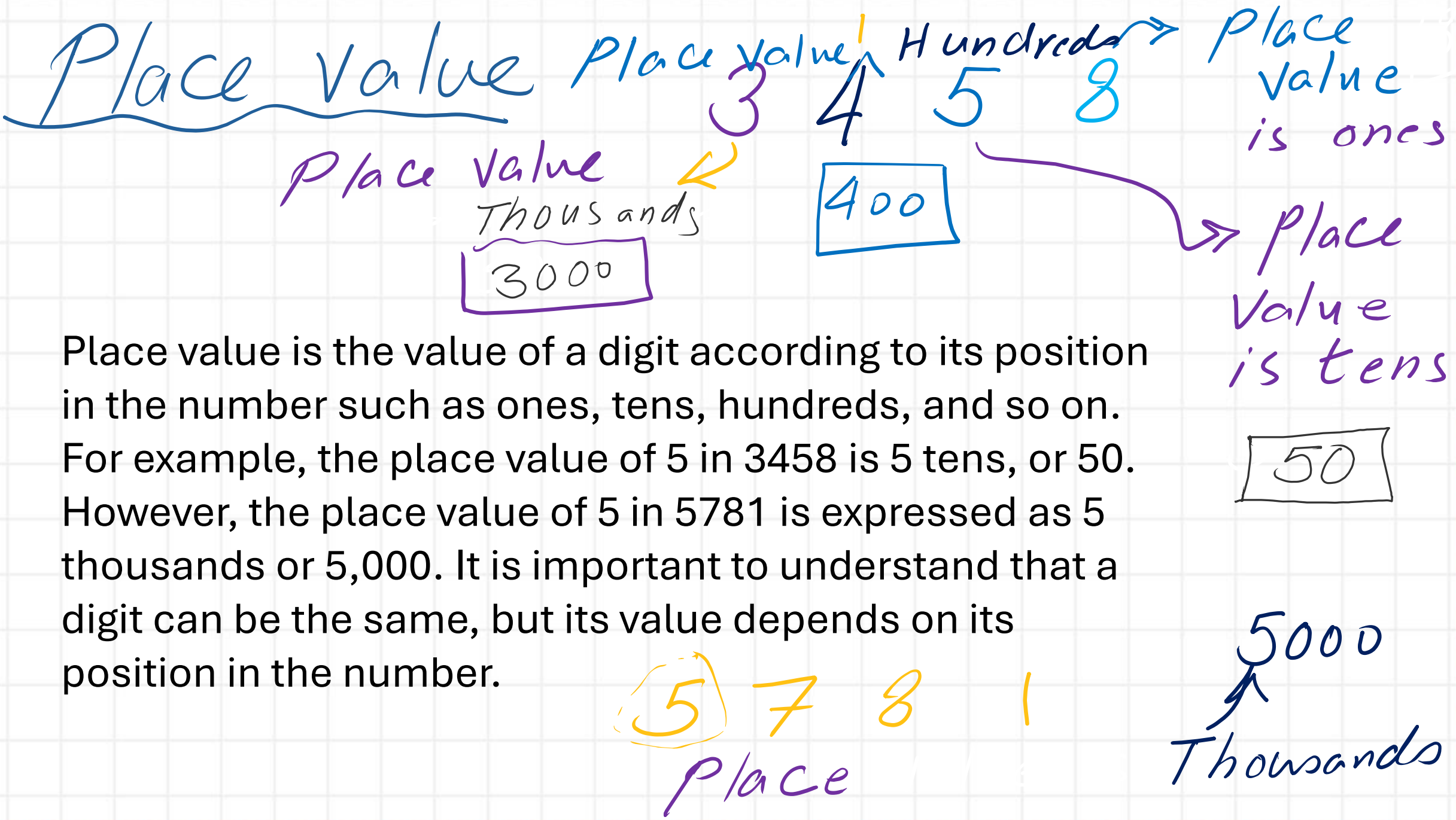
Place Value

Place value is the value of a digit according to its position in the number such as ones, tens, hundreds, and so on. For example, the place value of 5 in 3458 is 5 tens, or 50. However, the place value of 5 in 5781 is expressed as 5 thousands or 5,000. It is important to understand that a digit can be the same, but its value depends on its position in the number.



Rounding 28617 persons in Stadium to nearest 1000

Place value ⇒ Thousands

2	8	6	1	7
Ten Thousands	Thousands	Hundreds	Tens	Ones

since 675

Nearest 1000

Ten T H T O

28 | 617

round → 8 → 9

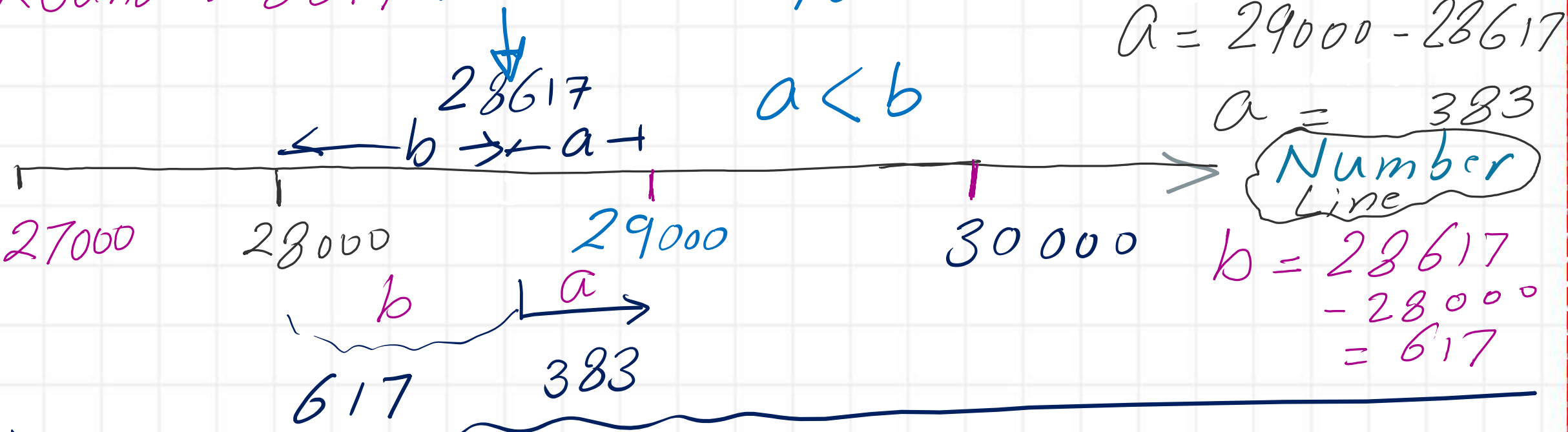
29,000

Round 28617 to nearest 10 Thousands

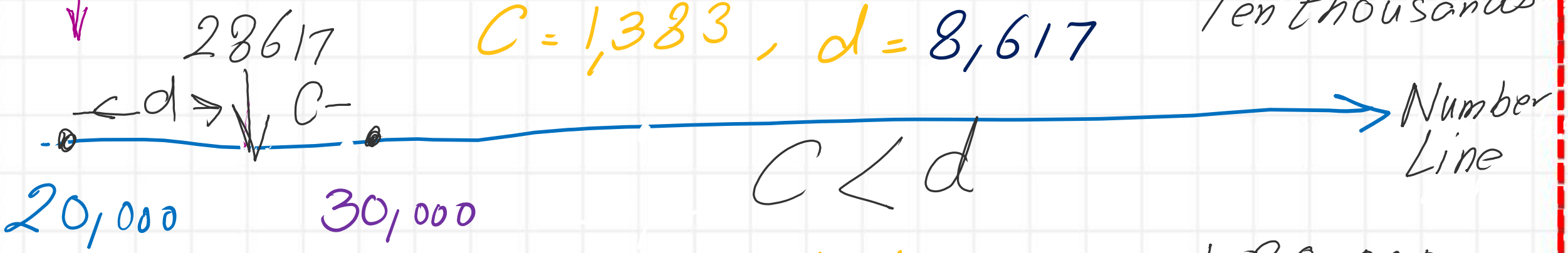
Place value

2 | 8617 8 > 5 2 → 3 ⇒ 30,000

Round 28617 → nearest 1000



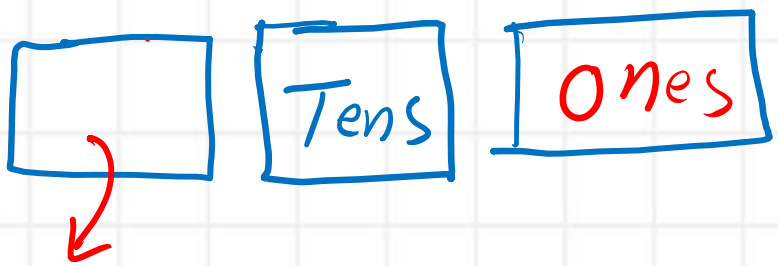
Nearest Ten thousands



Round to nearest 30,000

Roundin decimal

Whole number

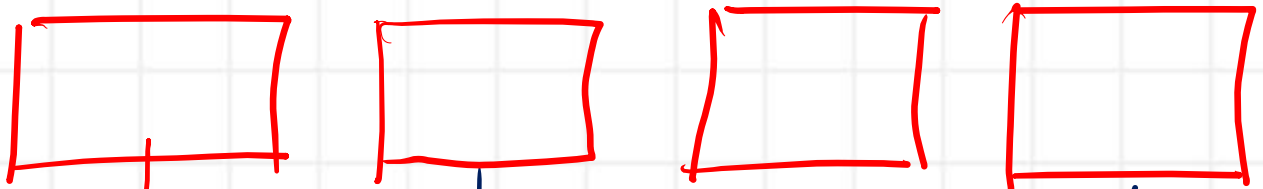


Hundreds

Place value

d.p

d.p. decimal point



Tenths

Hundredths

Thousandths

Ten Thousandths

Fraction part

7.864

Round one decimal Point

6 > 5

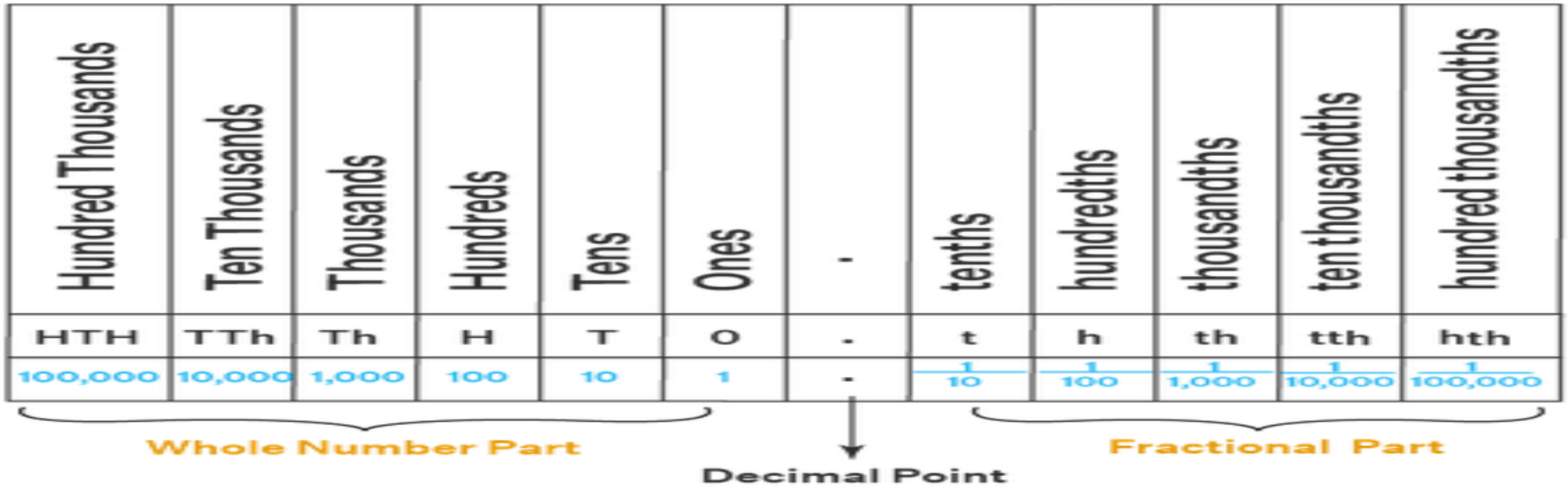
7.9

Round 7.864

Thousands round to nearest $\frac{1}{10}$

Round to two decimal places means to find the approximate value of a decimal number up to hundredths place.

There are many uses of rounding a number to two decimal places, for example, for getting the approximate value of length, height, weight, the distance between two objects or places, and so on.



Round 5.574 to Two decimal Points

nearest $\frac{1}{100}$

place value

5.57 4

$4 < 5$

2 decimal Points

or

Rounded to nearest one Hundredth

Rounding decimal Number

number can be approximate to decimal points (d.p)

3.1416 Round to Hundreds → 2 (d.p)

Place value : → 3.14

1 < 5

3.1416 Round to → Thousandth → 3 (d.p)

3.142

Place Value

6 > 5 1 ⇒ 2

Significant Figures S.F

Rule 1 - Non-zero digits are ALWAYS significant

Rule 2 - any zero contained between two non-zero numbers is significant

Rule 3 - leading zeroes are never significant

Rule 4 - final or trailing zeroes are significant only after a decimal point

Round 1.239 to 3 significant digits

From Rule-1 1, 2, 3, 9 are significant

1.239 ← 9 > 5 → 1.239 ⇒ 1.24

Rounded to

Significant Figures S.F

Rule 1 - Non-zero digits are ALWAYS significant

Rule 2 - any zero contained between two non-zero numbers is significant

Rule 3 - leading zeroes are never significant

Rule 4 - final or trailing zeroes are significant only after a decimal point

Round 1.239 to One Significant digits

From Rule-1

1, 2, 3 and 9 are all significant

$2 < 5 \Rightarrow 1.239 \rightarrow 1.0$

Round 134.9 to

$3 < 5$

One $\rightarrow$ SF $\Rightarrow$ Rounded to 100

Significant Figures

Rule 1 - Non-zero digits are ALWAYS significant.

Rule 2 - any zero contained between two non-zero numbers is significant.

Rule 3 - leading zeroes are never significant.

Rule 4 - final or trailing zeroes are significant only after a decimal point.

Leading zeros

Round 0.0043 to one significant digits

Do not Count Zeros

0.0043 ⟹ 3 < 5

Rounded to

0.0043 ⟹ 0.004

while 0.0165 → 2 SF ⟹ 0.017

Significant Figures S.F

Rule 1 - Non-zero digits are ALWAYS significant

Rule 2 - any zero contained between two non-zero numbers is significant

Rule 3 - leading zeroes are never significant

Rule 4 - final or trailing zeroes are significant only after a decimal point

Trailing Zeros →
12.000
5 S.F

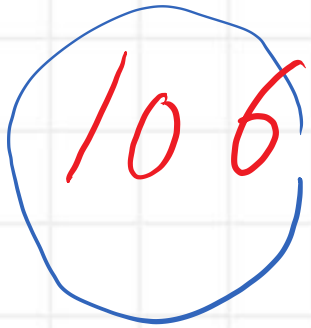
1.0055 → 1 S.F ⟹ 1
2 S.F ⟹ 1.0

1.0055 → S.F → 1.01

Rule 2

12.0055 → 5 S.F → 12.006
4 S.F → 12.01
3 S.F → 12.0

Whole Number



106.5 ← Fraction

Decimal Point

Whole Numbers

106.5 → 107 Nearest whole Number

Prepared by Eng.Maged Kamel.

https://www.calculatorsoup.com/calculators/math/significant-figures-rounding.php

Rounding the Number 305.459

Rounded to How Many sf or dp?	Rounded to Significant Figures (sf)	Rounded to Decimal Places (dp)
0	--	305
1	300	305.5
2	310	305.46
3	305.	305.459
4	305.5	305.4590
5	305.46	305.45900
6	305.459	305.459000

Round 239.456 to the nearest hundred

239.456

3 < 5

2 → remains → 200

No Fraction

Round 78.546 → (2 d.p) → 78.55

Prepared by Eng.Maged Kamel.

Leading zeros are zeros that appear before the first non-zero digit in a number, while trailing zeros are zeros that appear after the last non-zero digit. Leading zeros are generally not significant, meaning they don't affect the value of the number or its precision. Trailing zeros, on the other hand, can be significant, especially when a decimal point is present, as they indicate the level of precision in a measurement