

18. [Number / Place Value]

Skill 18.1 Finding the place value of a digit in a number.

MMBlue 1 1 2 2 3 3 4 4
MMGreen 1 1 2 2 3 3 4 4

The value of a digit in a number depends on its position within the number. The value of each position is called its place value. For example, in the number 8562, the digit 5 is in the hundreds place, so its (place) value is 5 hundred or $5 \times 100 = 500$.

Q. What is the value of each digit in the number 2675.834?

thousands	hundreds	tens	units	tenths	hundredths	thousandths
1000	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
2	6	7	5	8	3	4

↑
Decimal point

A. 2 is in the THOUSANDS place, so its value is 2000

(2×1000)

6 is in the HUNDREDS place, so its value is 600

(6×100)

7 is in the TENS place, so its value is 70

(7×10)

5 is in the UNITS place, so its value is 5

(5×1)

8 is in the TENTHS place, so its value is $\frac{8}{10}$

$(8 \times \frac{1}{10})$

3 is in the HUNDREDTHS place, so its value is $\frac{3}{100}$

$(3 \times \frac{1}{100})$

4 is in the THOUSANDTHS place, so its value is $\frac{4}{1000}$

$(4 \times \frac{1}{1000})$

a) What is the value of the digit 5 in the number 4850?

50 or (5×10)

b) What is the value of the numeral 9 in the number 972?

.....

c) What is the value of the numeral 3 in the number 3800?

.....

d) What is the value of the digit 1 in the number 60,013?

.....

e) What is the value of the digit 4 in the number 3.45?

.....

f) What is the value of the numeral 7 in the number 0.07?

.....

g) Write the value of the underlined digit: 5106

.....

h) Give the value of the underlined digit: 37.45

.....

i) In which number does the digit 7 have greater value? **A)** 709
B) 2071

.....

j) In which number does the digit 3 have greater value? **A)** 5023
B) 32.5

.....

To round a whole number to a given place value (unit, ten, hundred, thousand), look at the digit to the right of this place value. If the digit to the right is:

0, 1, 2, 3 or 4 - Round down - Keep the digit in the requested place value unchanged.

5, 6, 7, 8 or 9 - Round up - Add 1 to the digit in the requested place value.

When rounding, keep the number of digits in the answer the same as in the question by using zeros (e.g. 8652 rounded to the nearest thousand is 9000).

Q. Round 258 to the nearest multiple of 10.

A. $258 \approx 260$

The closest multiples of 10 are either 250 or 260.

5 is in the tens place.

Look at the digit to the right of the 5.

It is an 8, so round up. The 5 becomes a 6 and a zero fills the units place.

(258 is closer to 260 than to 250)

Q. Round 439 to the underlined place value.

A. $439 \approx 400$

The underlined digit is in the hundreds place. The choices are either 400 or 500.

Look at the digit to the right. It is a 3, so round down: 4 remains unchanged and zeros fill the tens and units places.

a) Round 8350 to the nearest multiple of 100.

8400

b) Round 5206 to the nearest multiple of 10.

c) Round 407 to the nearest multiple of 100.

d) Round 6800 to the nearest multiple of 1000.

e) Round 6571 to the nearest multiple of 10.

f) Round 25,300 to the nearest multiple of 1000.

g) Round 5084 to the underlined place value.

h) Round 3500 to the underlined place value.

i) Round 126 to the underlined place value.

j) Round 7344 to the underlined place value.

k) Round 2399 to the underlined place value.

l) Round 16,507 to the underlined place value.

To round a decimal number to the nearest whole number, look at the first digit after the unit and decimal point. If it is:

- 0, 1, 2, 3 or 4 - Round down - Leave the unit digit unchanged and drop the decimals.
- 5, 6, 7, 8 or 9 - Round up - Add 1 to the unit digit and drop the decimals.

To round a decimal number to a given place value (tenth, hundredth, thousandth), look at the digit to the right of this place value. If the digit to the right is:

- 0, 1, 2, 3 or 4 - Round down - Keep the digit in the requested place value unchanged and drop all the following decimals.
- 5, 6, 7, 8 or 9 - Round up - Add 1 to the digit in the requested place value and drop all the following decimals.

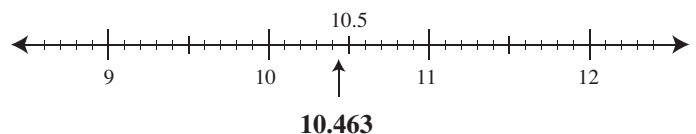
Q. Round 10.463 to the nearest whole number.

A. $10.463 \approx 10$

Whole number means a unit or higher. The digit after the unit and decimal point is a 4, so we round down by leaving the unit digit unchanged and dropping the decimals.

OR

The number line shows that 10.463 is between 10 and 11, but closer to 10.



Q. Round 0.89 to the nearest tenth.

A. $0.89 \approx 0.9$

The digit in the tenths place is 8. Look at the digit to the right. It is a 9, so round up. The 8 becomes a 9 and drop the rest of the decimals.

a) Round 19.53 to the nearest whole number.

20

b) Round 471.33 to the nearest whole number.

c) Round 1.535 to the nearest whole number.

d) Round 0.62 to the nearest whole number.

e) Round 4.025 to the nearest hundredth.

f) Round 11.29 to the nearest tenth.

g) Round 0.1284 to the nearest hundredth.

h) Round 1.153 to the nearest tenth.

i) Round 0.95 to the underlined place value.

j) Round 13.506 to the underlined place value.

Compare the size of the digits one at a time, from left to right (i.e. largest place value to smallest place value.)

Q. Which is greater:
1345 or 1347?

A. 1347

The digit with the greatest place value represents 1000 in each case.

Therefore compare the lesser place values. These are also the same until we get to the units, where $7 > 5$.

So 1347 is greater than 1345.

Q. $324 < 343$
True or false?

A. True

$324 < 343$ means "324 is less than 343."

The digit with the greatest place value represents 300 in each case.

Therefore compare the tens place, where $2 < 4$.

So "324 is less than 343" is a true statement.

a) Which is greater:
617 or 671?

671

b) Which is greater:
3005 or 3015?

c) Which is greater:
32,714 or 23,714?

d) Which number is the largest?

A) 435

B) 345

C) 354

A

e) Which number is the largest?

A) 2022

B) 2002

C) 2020

f) Which number is the largest?

A) 3605

B) 3065

C) 3506

g) $108 > 180$
True or false?

False

h) $456 > 465$
True or false?

i) $9805 > 9085$
True or false?

j) Place in order from smallest to largest:

102, 112, 92, 109

92, 102, 109, 112

k) Place in order from largest to smallest:

123, 231, 312, 213, 132

l) Place in order from smallest to largest:

683, 703, 693, 739

m) Place in order from smallest to largest:

3108, 3018, 3180, 3081

n) Place in order from largest to smallest:

2570, 2705, 2075, 2507

o) Place in order from smallest to largest:

1101, 1011, 1001, 1010

Compare the size of the digits one at a time, from left to right (i.e. largest place value to smallest place value.)

Q. Which is greater: 8.26 or 8.3?	A. 8.3	<i>First compare digits starting with the largest place value. Both numbers begin with an 8. When comparing tenths, 0.3 is greater than 0.2, therefore 8.3 is greater. The 6 hundredths then, do not affect the result.</i>
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Q. $1.8 < 1.08$ True or false?	A. <i>False</i>	<i>Both numbers begin with 1. When comparing tenths, 0.8 is greater than 0.0, therefore 1.8 is greater and the statement "$1.8 < 1.08$" is false. The 8 hundredths then, do not affect the result.</i>
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a) Which is greater:
2.2 or 2.22?

2.22
.....

b) Which is greater:
0.4 or 0.49?

.....

c) Which is greater:
32.2 or 32.21?

.....

d) Which number is the largest?

- A) 15.30
- B) 1.503
- C) 15.03

A
.....

e) Which number is the largest?

- A) 7.08
- B) 7.008
- C) 7.8

.....

f) Which number is the largest?

- A) 55.055
- B) 55.050
- C) 55.50

.....

g) $0.78 < 0.87$
True or false?

True
.....

h) $57.1 < 5.71$
True or false?

.....

i) $0.44 > 0.404$
True or false?

.....

j) Place in order from smallest to largest:
2.43, 2.4, 2.04, 2.34

2.04, 2.34, 2.4, 2.43
.....

k) Place in order from smallest to largest:
325.5, 325.4, 325.54

.....

l) Place in order from largest to smallest:
6.2, 6.02, 6.12, 6.1

.....

m) Use $<$, $=$ or $>$ to complete the statement.

$5.7 \dots \dots 5.08$

n) Use $<$, $=$ or $>$ to complete the statement.

$9.1 \dots \dots 9.100$

o) Use $<$, $=$ or $>$ to complete the statement.

$1.082 \dots \dots 1.82$

To more easily compare the size of fractions, decimals and percents convert them to the same form. The most convenient way is to write the fractions and percents as decimals.

Q. $\frac{3}{4} > 80\%$
True or false?

A. $\frac{3}{4} = 3 \div 4$
 $= 0.75$
 $= 75\%$
 $75\% < 80\%$
False

$$\begin{array}{r} 0.75 \\ 4 \overline{) 3.00} \end{array}$$

It is easier to write the fraction as a decimal and then change it to a percent.

Q. Place in order from smallest to largest:
 $\frac{1}{5}$, 0.15, 5%

A. $\frac{1}{5} = 1 \div 5$
 $= 0.2$
 $5\% = 0.05$
As decimals, the order is: 0.05, 0.15, 0.2
5%, 0.15, $\frac{1}{5}$

$$\begin{array}{r} 0.2 \\ 5 \overline{) 1.0} \end{array}$$

Write the fraction and the percent as decimals.

a) $\frac{5}{6} > 80\%$
True or false?
 $\frac{5}{6} = 5 \div 6 = 0.\overline{83} \approx 83\%$
.....
True
.....

b) $\frac{3}{5} < 70\%$
True or false?
.....
.....

c) $\frac{7}{8} > 0.8$
True or false?
.....
.....

d) $\frac{3}{4} < 0.7$
True or false?
.....
.....

e) $\frac{1}{2} > 0.2$
True or false?
.....
.....

f) $\frac{1}{4} > 40\%$
True or false?
.....
.....

g) Place in order from largest to smallest:
 $\frac{3}{10}$, 0.33, 3%
 $\frac{3}{10} = 0.3$, $3\% = 0.03$
.....
0.33, $\frac{3}{10}$, 3%
.....

h) Place in order from smallest to largest:
 $\frac{51}{100}$, 0.5, 55%
.....
.....

i) Place in order from smallest to largest:
 $\frac{1}{4}$, 0.04, 40%
.....
.....

j) Place in order from largest to smallest:
 $\frac{1}{5}$, 0.19, 21%
.....
.....

k) Place in order from smallest to largest:
 $\frac{5}{7}$, 0.77, 75%
.....
.....

l) Place in order from smallest to largest:
 $\frac{1}{4}$, 0.28, 23%
.....
.....