

17. [Exploring Number]

Skill 17.1 Comparing whole numbers.

MM7 1 2 2 3 3 4 4
MM8 1 1 2 2 3 3 4 4

- Compare the size of the digits in the same place, one at a time.
- Work from left to right across each number.

Q. Which number is the largest?

- A) 24 706
B) 24 670
C) 24 760

A. C

Tens of thousands and thousands:

All numbers have the same digit in the tens of thousands place (2), and the same digit in the thousands place (4).

Hundreds:

In the hundreds place 7 is greater than 6. So A and C are greater than B.

Tens:

In the tens place 6 is greater than 0. So 24 760 is greater than 24 706.

> means "is greater than"

< means "is less than"

a) $45\ 804 > 45\ 480$
True or false?

$8 > 4$

⇒

true

compare the hundreds place

b) $3207 < 3072$
True or false?

⇒

c) $60\ 198 > 61\ 980$
True or false?

⇒

d) $9137 < 9317$
True or false?

⇒

e) $52\ 620 > 52\ 260$
True or false?

⇒

f) $7548 > 7584$
True or false?

⇒

g) Which number is the largest?

- A) 1805
B) 1850
C) 1800

$5 > 0$

⇒

B

compare the digits in the tens place

h) Which number is the largest?

- A) 30931
B) 30391
C) 30913

⇒

i) Which number is the largest?

- A) 19054
B) 19504
C) 19450

⇒

j) Which number is the largest?

- A) 2380
B) 2083
C) 2308

⇒

k) Which number is the largest?

- A) 62075
B) 62570
C) 62750

⇒

l) Which number is the largest?

- A) 47091
B) 47190
C) 47019

⇒

Skill 17.2 Understanding and finding the place value of a digit in a number (1). MM7 1 1 2 2 3 3 4 4
MM8 1 1 2 2 3 3 4 4

- Compare the position of the digit to the position of the decimal point.
Hint: There is a decimal point which is not written, at the end of any whole number.

Place value	tens of thousands	thousands	hundreds	tens	units	tenths	hundredths	thousandths
Value	30 000	6 000	100	50	8	$\frac{2}{10}$	$\frac{4}{100}$	$\frac{7}{1000}$
	3	6	1	5	8	2	4	7

↑
Decimal point

Q. What is the value of the underlined digit in the number 36 158.247? **A.** 30 000 Consider the position of the digit 3 to that of the decimal point. 3 is five places to the left so it is in the tens of thousands place. The 3 represents 3 tens of thousands or 30 000

a) In the number 14058 which digit is in the tens place? **b)** In the number 9023 which digit is in the units place?

c) In the number 5836 which digit is in the hundreds place? **d)** In the number 24 108 which digit is in the thousands place?

e) In the number 16.253 which digit is in the units place? **f)** In the number 0.017 which digit is in the hundredths place?

g) In the number 45.809 which digit is in the tenths place? **h)** In the number 0.0874 which digit is in the thousandths place?

i) What is the value of the underlined digit in the number 259? **j)** What is the value of the underlined digit in the number 3270?

5 tens ⇒ ⇒

k) What is the value of the underlined digit in the number 16092? **l)** What is the value of the underlined digit in the number 86925?

⇒ ⇒

Skill 17.2 Understanding and finding the place value of a digit in a number (2).

 MM7 1 1 2 2 3 3 4 4
 MM8 1 1 2 2 3 3 4 4

m) What is the value of the underlined digit in the number $\underline{5}124$?

..... \Rightarrow

n) What is the value of the underlined digit in the number $730\underline{6}1$?

..... \Rightarrow

o) What is the value of the underlined digit in the number $\underline{2}9603$?

..... \Rightarrow

p) What is the value of the underlined digit in the number $8\underline{7}14$?

..... \Rightarrow

q) What is the value of the underlined digit in the number $35.\underline{04}3$?

$4 \text{ hundredths} = \frac{4}{100} = \boxed{0.04}$

r) What is the value of the underlined digit in the number $5.08\underline{2}$?

$2 \text{ thousandths} = \frac{2}{1000} = \boxed{}$

s) What is the value of the underlined digit in the number $0.\underline{9}8$?

..... $=$

t) What is the value of the underlined digit in the number $1.0\underline{7}6$?

..... $=$

u) In which number does the digit 4 have greater value?
 A) 4.65
 B) 30.4

A) value 4

B) value 0.4 $4 > 0.4 \Rightarrow \boxed{A}$

v) In which number does the digit 6 have greater value?
 A) 20406
 B) 1063

A)

B) \Rightarrow

w) In which number does the digit 1 have greater value?
 A) 3.15
 B) 1.98

A)

B) \Rightarrow

x) In which number does the digit 9 have greater value?
 A) 4907
 B) 10892

A)

B) \Rightarrow

y) In which number does the digit 3 have greater value?
 A) 8.931
 B) 1.375

A)

B) \Rightarrow

z) In which number does the digit 5 have greater value?
 A) 0.652
 B) 0.526

A)

B) \Rightarrow

- Write the digits in order.
- Leave a space between the thousands and the hundreds, and between the millions and the hundreds of thousands.
- Write a zero in any place that is left empty between other digits.

Q. Express in numerals:
fifty thousand, six hundred and nine

A. 50 609

Tens of Th.	Th.	H	T	U
5	0	6	0	9

First write 50 for the words “fifty thousand”, then write a comma. Write the digit 6 for the hundreds, then write the digit 0, because there are no tens. Finally write the digit 9 for the units.

a) Express in numerals:
two hundred and fifteen

215

b) Express in numerals:
four thousand, one hundred and fifty

c) Express in numerals:
six thousand and eighty-two

d) Express in numerals:
eight thousand, one hundred and seventeen

e) Express in numerals:
nine hundred and two

f) Express in numerals:
three thousand, four hundred

g) Express in numerals:
two hundred and ninety-eight

h) Express in numerals:
seven thousand, three hundred and nine

i) Express in numerals:
five hundred and thirty

j) Express in numerals:
twelve thousand, six hundred

k) Express in numerals:
seven hundred and fourteen

l) Express in numerals:
fourteen thousand and sixty-three

m) Express in numerals:
sixty thousand, five hundred and forty

n) Express in numerals:
thirty-one thousand and seven

o) Express in numerals:
four hundred and three thousand, two hundred

p) Express in numerals:
eight hundred thousand and fifty

q) Express in numerals:
one million, nine hundred thousand and twenty-six

r) Express in numerals:
seven million, six hundred thousand and forty

Skill 17.4 Writing whole numbers in words (1).

- Start from left and write the word for each digit (unless it is a 0), followed by its place value.
- Don't write anything for any 0's.

word first!

200 = two hundred

place next

To write 2-digit numbers in words:

- Use a hyphen (-) to separate the word for the tens from the word for the units, for all numbers from 21 to 99; e.g. 67 is written as sixty-seven.

Hint: Some 2-digit numbers have names that do not follow the usual rules. Use the following:

10 ten	50 fifty	90 ninety	14 fourteen	18 eighteen
20 twenty	60 sixty	11 eleven	15 fifteen	19 nineteen
30 thirty	70 seventy	12 twelve	16 sixteen	
40 forty	80 eighty	13 thirteen	17 seventeen	

To write 3-digit numbers in words:

- Describe the number of hundreds first. Always write 'hundred' not 'hundreds'.
- Write 'and' after the word 'hundred', if other values follow.

To write 4-digit numbers in words:

- Describe the number of thousands first. Always write 'thousand' not 'thousands'.
- Write 'and' between the word 'thousand' and the following numerals when hundreds are missing.

To write 5-digit numbers in words:

- Describe the number of thousands by following the rules for 2-digit numbers.

To write 6-digit numbers in words:

- Describe the number of thousands by following the rules for 3-digit numbers.

Q. Write the number 7069 in words.

A. *seven thousand and sixty-nine*

Th.	H	T	U
7	0	6	9

7 thousands, 0 hundreds, 6 tens and 9 units
become in words:
seven thousand and sixty-nine

a) Write the number 318 in words.

three hundred and eighteen

b) Write the number 65 in words.

c) Write the number 90 in words.

d) Write the number 413 in words.

e) Write the number 706 in words.

f) Write the number 520 in words.

Skill 17.4 Writing whole numbers in words (2).MM7 11 22 3 3 4 4
MM8 11 2 3 3 4 4**g)** Write the number 800 in words.**h)** Write the number 609 in words.**i)** Write the number 570 in words.**j)** Write the number 1600 in words.**k)** Write the number 4200 in words.**l)** Write the number 2004 in words.**m)** Write the number 5007 in words.**n)** Write the number 3012 in words.**o)** Write the number 8040 in words.**p)** Write the number 35 000 in words.**q)** Write the number 86 000 in words.**r)** Write the number 19 000 in words.**s)** Write the number 10 700 in words.**t)** Write the number 24 300 in words.**u)** Write the number 15 090 in words.**v)** Write the number 17 008 in words.**w)** Write the number 903 000 in words.**x)** Write the number 406 000 in words.**y)** Write the number 102 000 in words.**z)** Write the number 905 000 in words.

Skill 17.5 Rounding whole numbers to a given place.

MM7 11 22 3 44
MM8 11 22 3 44

- Circle the digit to the right of the requested place.
- If this digit is 0, 1, 2, 3 or 4 (< 5) - **round down** - keep the digit in the requested place the same.
5, 6, 7, 8 or 9 (≥ 5) - **round up** - add 1 to the digit in the requested place.
- Keep the number of digits in the answer the same as in the question by using zeros to fill the vacated spaces.

Q. Round 4067 to the nearest hundred.

A. 4100

Th.	H	T	U
4	0	6	7

 \Rightarrow

Th.	H	T	U
4	1	0	0

The digit to the right of the hundreds place is 6.

$6 \geq 5$ so round up.

Add 1 to the 0 in the hundreds place to make 1.

Put zeros in the tens and units places.

a) Round 12 360 to the nearest thousand.

12(3)60 \Rightarrow 12 000
3 < 5 round down by keeping 2

b) Round 345 to the nearest ten.

\Rightarrow

c) Round 2574 to the nearest hundred.

\Rightarrow

d) Round 806 to the nearest ten.

\Rightarrow

e) Round 221 to the nearest ten.

\Rightarrow

f) Round 34 220 to the nearest thousand.

\Rightarrow

g) Round 1657 to the nearest hundred.

\Rightarrow

h) Round 71 635 to the nearest thousand.

\Rightarrow

i) Round 4907 to the nearest ten.

\Rightarrow

j) Round 1449 to the nearest hundred.

\Rightarrow

k) Round 20 506 to the nearest thousand.

\Rightarrow

l) Round 3650 to the nearest hundred.

\Rightarrow

m) Round 168 to the nearest ten.

\Rightarrow

n) Round 5630 to the nearest hundred.

\Rightarrow

Skill 17.6 Rounding decimal numbers to a given place.

MM7 11 22 33 44
MM8 11 22 33 44

To round a decimal number to the nearest whole number:

- Circle the first digit after the decimal point.
- If this digit is: 0, 1, 2, 3 or 4 (< 5) - **round down** - keep the unit digit unchanged and drop all the digits after the decimal point.
- 5, 6, 7, 8 or 9 (≥ 5) - **round up** - add 1 to the unit digit and drop all the digits after the decimal point.

To round a decimal number to a given place (one decimal place means tenths, two decimal places means hundredths and three decimal places means thousandths):

- Circle the digit to the right of the requested place.
- If this digit is: 0, 1, 2, 3 or 4 (< 5) - **round down** - keep the digit in the requested place unchanged and drop all following digits.
- 5, 6, 7, 8 or 9 (≥ 5) - **round up** - add 1 to the digit in the requested place and drop all following digits.

Q. Round 2.75 to the nearest whole number.

A. 3

Units	Tenths	Hundredths	⇒	Units	Tenths	Hundredths
2	7	5		3	∅	∅

The first digit after the decimal point is 7.
 $7 \geq 5$ so round up.
 Add 1 to the 2 in the units place to make 3.
 Omit the digits after the decimal point.

a) Round 13.4 to the nearest whole number.

13.4 *4 < 5 round down by keeping 3* ⇒

b) Round 17.97 to the nearest whole number.

..... ⇒

c) Round 45.85 to the nearest whole number.

..... ⇒

d) Round 2.468 to the nearest whole number.

..... ⇒

e) Round 1.8736 to three decimal places.

1.8736 *6 ≥ 5 round up by adding 1 to 3* ⇒

f) Round 18.683 to two decimal places.

..... ⇒

g) Round 0.59 to one decimal place.

..... ⇒

h) Round 9.81 to one decimal place.

..... ⇒

i) Round 7.843 to two decimal places.

..... ⇒

j) Round 0.0856 to three decimal places.

..... ⇒

k) Round 0.52 to one decimal place.

..... ⇒

l) Round 0.1968 to three decimal places.

..... ⇒

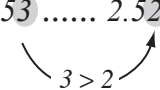
Skill 17.8 Using inequality and equality signs to compare decimal numbers.

MM7 11 22 33 44
MM8 11 22 33 44

- Compare digits in the same places, starting from the left.
Hint: The number with the greater digit in the same place will be greater.
- Use the inequality sign $<$ (is less than) when the number on the left is less than the number on the right.
- Use the inequality sign $>$ (is greater than) when the number on the left is greater than the number on the right.
- Use the equality sign $=$ (is equal to) when the numbers are equal in value.

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

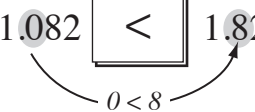
$$2.53 \boxed{} 2.529$$

A. $2.53 \dots\dots 2.529$

 $\Rightarrow 2.53 > 2.529$

Units: both 2
Tenths: both 5
Hundredths: 3 is greater than 2
 so 2.53 is greater than 2.529

Use the symbol for 'greater than' which is $>$

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

$$1.082 \boxed{<} 1.82$$


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

$$32.07 \boxed{} 32.070$$

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

$$3.1 \boxed{} 3.002$$

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

$$49.5 \boxed{} 49.05$$

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

$$69.2 \boxed{} 69.21$$

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

$$3.07 \boxed{} 3.7$$

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

$$9.1 \boxed{} 9.100$$

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

$$0.4 \boxed{} 0.49$$

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

$$2.2 \boxed{} 2.22$$

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

$$5.7 \boxed{} 5.08$$

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

$$0.8 \boxed{} 0.79$$

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

$$0.44 \boxed{} 0.404$$

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

$$7.008 \boxed{} 7.08$$

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

$$9.02 \boxed{} 9.0200$$

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

$$15.30 \boxed{} 15.03$$