Numbers to 10,000,000 ❷

1 Luis, Bella and Jamilla are playing a board game with toy money.

a) This place value grid shows Luis's money. How much does he have?

M	HTh	TTh	Th	H	T	O
£1,000,000 £1,000,000	£100,000 £100,000 £100,000	£10,000 £10,000	£1,000 £1,000 £1,000 £1,000 £1,000 £1,000	£100 £100 £100 £100	£10 £10 £10 £10 £10	£1 £1 £1 £1 £1 £1 £1
2	3	2	6	4	5	7

2,000,000 + 300,000 + 20,000 + 6,000 + [400] + [50] + [7] =

[2,326,457]

Luis has £ [2,326,457] .

b) This place value grid shows Bella's money. How much does she have?

M	HTh	TTh	Th	H	T	O
	£100,000 £100,000 £100,000	£10,000 £10,000 £10,000 £10,000 £10,000			£10 £10 £10	£1 £1 £1 £1 £1 £1 £1

[300,000] + [50,000] + [30] + [7] = [350,037]

Bella has £ [350,037] .

c) This is Jamilla's money. How much does she have?

Jamilla has £ [2,100,220] .

2 Complete the part-whole models.

a)

b)

3 Complete the partitions.

a) 8,047 = 8,000 + 40 + [7]

b) 30,429 = 30,000 + [400] + [20] + [9]

c) 260,392 = [200,000] + [60,000] + [300] + [90] + [2]

d) 8,500 + 12 = [8,512]

e) 720,000 + 3,500 + 70 + 2 = [723,572]

f) 3,000,000 + 56,000 + 800 + 25 = [3,056,825]

g) 412 + 4,000,000 + [412,000] = 4,412,412

4 Complete the sentences.

a) 100 more than 3,098,728 is [3,098,828].

b) 1,000 more than 3,098,728 is [3,099,728].

c) 10,000 more than 3,098,728 is [3,108,728].

d) 1 million less than 3,098,728 is [2,098,728].

e) 100,000 less than 3,098,728 is [2,998,728].

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5 What is the value of the underlined digit in each number?

a) 7,456,820

7 million

c) 3,307,184

7 thousand

b) 2,768,415

7 hundred thousand

d) 6,000,070

7 tens

6 What is this number? Is there more than one solution?

CHALLENGE

The number has 7 digits.
The ten-thousands digit is half the ones digit.
The hundreds digit is 3 times the millions digit.
The total of all the digits is 20.

The number is [   ].

1,141,328

There are other solutions.

Reflect

Write two number sentences showing how you can partition 4,508,375 in two different ways. Compare your sentences with your partner's. Discuss how they are the same or different.

Number line to 10,000,000

1 What does each number line go up in?

a)

```
├───┼───┼───┼───┼───┼───┼───┼───┼───┼───┤
5,000,000                                      6,000,000
```

The number line goes up in [100,000] s.

b)

```
├───┼───┼───┼───┼───┼───┼───┼───┼───┼───┤
90,000                                         100,000
```

The number line goes up in [1000] s.

2 Complete the number lines.

a)

```
├───┼───┼───┼───┼───┼───┼───┼───┼───┼───┤
5,400   5,500   5,600
```
[5,700] [5,800] [5,900] [6,000] [6,100] [6,200]

b)

```
├──────┼──────┼──────┼──────┼──────┤
66,310      66,320      66,330
```
[66,340] [66,350] [66,360]

3 Write in the missing numbers.

a) 127,520   128,520   129,520   [130,520] [131,520] [132,520]

b) 420,700   520,700   620,700   [720,700] [820,700] [920,706]

c) 7,400   7,300   7,200   [7,100] [7,000] [6,900]

d) 3,200,000 3,210,000 3,220,000 [3,230,000] [3,240,000] [3,250,000]

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4 What numbers are the arrows pointing to?

a)

20,000 ⬇   70,000 ⬇   [ ] ⬇

0   50,000   100,000

b)

2,300,000 ⬇   2,550,000 ⬇

2,000,000   3,000,000

c)

620 ⬇   730 ⬇   785 ⬇

600   700   800

5 Draw arrows from each number to its position on the number line.

a)   815,000   870,000   851,000

800,000   900,000

b)   9,500   9,999   8,400   8,950

8,000   10,000

6 The bar chart shows the population of three countries in a particular year.

CHALLENGE

Estimate the population of each country.

a) Finland's population is about ⬚ 5,490,000 .

b) Bulgaria's population is about ⬚ 7,200,000 .

c) Switzerland's population is about ⬚ 8,600,000 .

Reflect

How can you estimate what number the arrow is pointing to?

200,000   300,000

- It is less than 250,000
- About 242,000

Comparing and ordering numbers to 10,000,000

1   Which number is greater, A or B? Explain your answer.

	M	HTh	TTh	Th	H	T	O
A	⊙⊙⊙⊙⊙ ⊙	⊙⊙⊙⊙	⊙⊙⊙⊙⊙	⊙⊙⊙⊙⊙ ⊙⊙⊙	⊙⊙⊙		

	M	HTh	TTh	Th	H	T	O
B	⊙⊙⊙⊙⊙ ⊙	⊙⊙⊙⊙	⊙⊙⊙⊙⊙	⊙⊙	⊙⊙⊙⊙⊙ ⊙⊙⊙⊙	⊙⊙⊙⊙	⊙

Number [**A**] is greater, because ___same M , same HTh,___
___same TTh , more Th .___

2   Complete the number sentences using < or > .

a)   9,580 ⟶ **>** 9,570   9,580 **<** 9,589

     9,580 **<** 9,680   9,580 **<** 10,000

     9,580 **<** 9,681   10,000 **>** 9,580

b)   540,000 **>** 54,000   540,000 **>** half a million

     540,000 **<** 450,000   540,000 **<** 600,000

     540,000 **>** 540   540,000 **<** 3,000,000

3 Write the letter for each house in order of price. Start with the least expensive.

A £370,500   B £429,700   C £375,000   D £357,905

Least expensive   Most expensive

[D]   [A]   [C]   [B]

> I will compare the digits in each number, starting with the 100,000s.

4 The table shows the masses of four elephants in a safari park.

The elephants are fed one at a time, in order, starting with the heaviest. Which elephant is fed third?

_____Benny_____ is fed third.

Elephant		Mass
Alfie	②	5,600 kg
Benny	③	5,060 kg
Cal	①	6,050 kg
Dolly	4	5,006 kg

5 Write the following numbers in ascending order.

725,906   728,000   725,960   73,000

[73,000]   [725,906]   [725,960]   [728,000]

Smallest   Greatest

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6 What could the missing digit be in each number?

Write down all the possibilities.

a) 3,☐40 < 3,270   1, 2,

b) 2☐,390 > 25,400   6, 7, 8, 9

c) 2☐,390 > 24,380   4, 5, 6, 7, 8, 9

d) 8,491 > 8,4☐6   1, 2, 3, 4, 5, 6, 7, 8

e) 8,491,012 > 8,49☐,102   0

7 Find the missing digits. Give three different answers.

CHALLEN[

246,17⟨0⟩ < 24⟨6⟩,1⟨7⟩0 < 246,⟨1⟩⟨8⟩5 < 246,400   Lots

246,17⟨8⟩ < 24⟨6⟩,1⟨9⟩0 < 246,⟨2⟩⟨8⟩5 < 246,400   of possible

246,17⟨3⟩ < 24⟨6⟩,1⟨8⟩0 < 246,⟨1⟩⟨9⟩5 < 246,400   answers.

Reflect

These numbers are in descending order (get smaller): true or false? Explain your answer.

15,600   12,600   12,500   ⟨120,000⟩   2,000

• 120,000 is bigger

• false

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Rounding numbers

1 Olivia represents the number 13,672 on a place value grid.

TTh	Th	H	T	O
●	●●●	●●●●● ●	●●●●● ●●	●●

a) Olivia says that to round the number to the nearest 1,000 she needs to look at the thousands column. Is Olivia correct? Explain your answer.

No she needs to look at the hundreds column first.
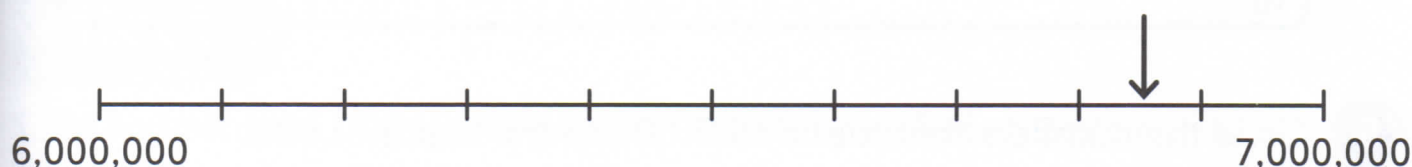
b) Complete the sentences.

13,672 rounded to the nearest 1,000 is 14,000 .

13,672 rounded to the nearest 100 is 13,700 .

2 The arrow points to a number on the number line.

Round the number to the nearest 1,000,000. Explain your answer.

6,000,000   7,000,000

The number rounds to 7,000,000 because it is closer to 7,000,000 than 6,000000 .

3 **a)** 137,987 rounded to the nearest 100,000 is [100,000] .

147,987 rounded to the nearest 100,000 is [100,000] .

157,987 rounded to the nearest 100,000 is [200,000] .

167,987 rounded to the nearest 100,000 is [200,000] .

b) 57,390 rounded to the nearest 10,000 is [60,000] .

57,480 rounded to the nearest 10,000 is [60,000] .

57,590 rounded to the nearest 10,000 is [60,000] .

57,690 rounded to the nearest 10,000 is [60,000] .

4 Complete the table.

Rounded to the nearest	128,381	1,565,900	72,308
100,000	100,000	1,600,000	100,000
10,000	130,000	1,570,000	70,000
1,000	128,000	1,566,000	72,000
100	128,400	1,565,900	72,300
10	128,480	1,565,900	72,310

5 Circle the numbers that round to 17,000 to the nearest 1,000.

(17,450)   (17,399)   (16,500)   17,500

(16,790)   16,099   (16,999)   (17,098)

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6

| 1 | 2 | 5 | 6 | 9 |

Use the digit cards to make a number that:

a) rounds to 15,700 to the nearest 100   15,710

Lots of answers

b) rounds to 60,000 to the nearest 10,000   59,000

c) rounds to 60,000 to the nearest 1,000.   59,650

7 Complete the sentences.

CHALLENGE

a) 3,607 rounded to the nearest __*ten*__ is 3,610.

b) 11,53 2 rounded to the nearest 100 is 11,500.

c) 25,497 rounded to the nearest __*ten*__ ~~50~~ and

__*nearest hundred*__ is 25,500 .

d) 25, 9 97 rounded to the nearest 10, 100 and 1,000 is 26,000 .

Reflect

15,782 rounds to 16,000 to the nearest 1,000: true or false? Explain in two different ways how you know.

_____

_____

_____

23

Negative numbers

1 The table shows the temperature in three places in the UK.

Fort William	Leeds	Swansea
⁻6 °C	⁻3 °C	7 °C

a) The temperature in Fort William increases by 7 °C.

What is the new temperature?

| 1 | °C

b) How much colder is the temperature in Leeds than in Swansea?

| 10 | °C

2 Isla and Mo are playing a game. Isla is on ⁻3 and Mo is on 6.

12	11	10	9	8	7	6	5	4	3	2	1
											0
⁻12	⁻11	⁻10	⁻9	⁻8	⁻7	⁻6	⁻5	⁻4	⁻3	⁻2	⁻1

Mo moves back 7 places. Isla moves forward 10 places.   6−7 = ⁻1

How many places ahead of Mo is Isla now?   ⁻3 + 10 = 8

| 8 | places

3 A pipe is 24 metres below ground. A crane lifts the pipe 38 metres upwards.
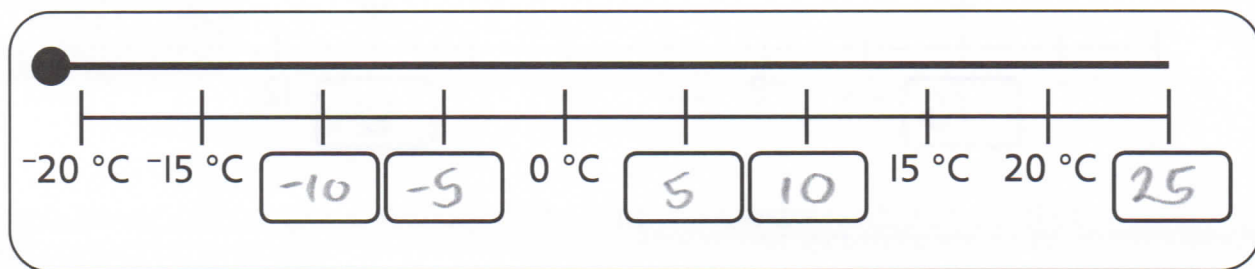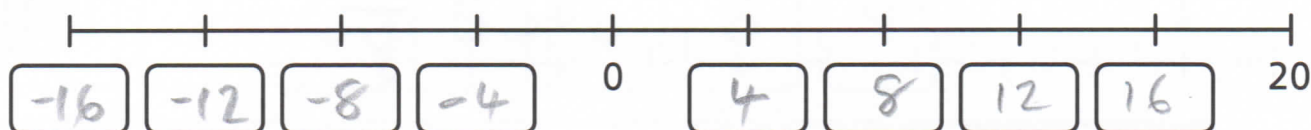
How many metres above the ground is the pipe now?

| 14 | metres

24

4 Complete the number lines.

a)

-20 °C -15 °C [-10] [-5] 0 °C [5] [10] 15 °C 20 °C [25]

b)

[-16] [-12] [-8] [-4] 0 [4] [8] [12] [16] 20

c)

[0] [10] [20] [40] [60] [80] [100] 120 [140] 160

5 A number line is divided into sections.

A   B   C   D   E   F   G   H   I   J   K

-12   -9   -6   -3   0   3   6   9   12   15   18

a) In which section will each of these numbers appear?

7 _____H_____   11 _____I_____   -5 _____D_____

17·5 _____K_____   -3½ _____D_____   -11·1 _____B_____

b) Write down three numbers that will appear in section B.

[-10] [-11] [-11·2] many answers

25

6 What are the values of A and B?

A   B

-16 -12 ⁻8 -4   0   4   8   12

7 Z   X   Y   **CHALLENG**

7 × 25 = 175

100

100 ÷ 4 = 25

a) The difference between X and Y is 100.

What is the difference between X and Z?   175
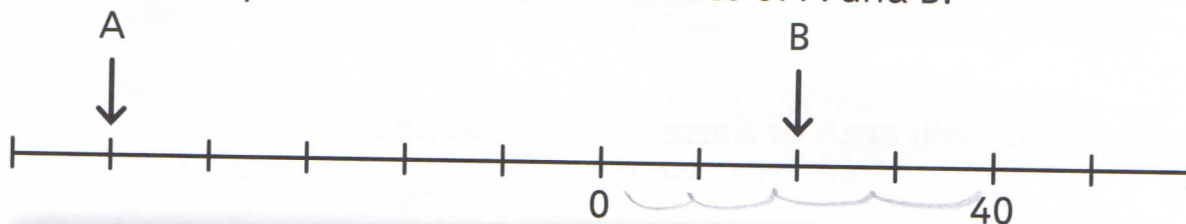
b) If 0 lies half-way between X and Y, what is the value of Z?   -225

Reflect

Explain how you can work out the values of A and B.

A   B

0   40

Each chunk is worth 10

B is 20

A is -50

Difference is 70

26