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# Rounding to the Nearest 10, 100 and 1000

## Answers

1. Round each number to the nearest 10.

a. 78

**80**

e. 4532

**4530**

b. 123

**120**

f. 10 675

**10 680**

c. 565

**570**

g. 456 789

**456 790**

d. 1984

**1980**

h. 9999

**10 000**

2. Round each number to the nearest 100.

a. 786

**800**

e. 15 499

**15 500**

b. 231

**200**

f. 103 475

**103 500**

c. 467

**500**

g. 24 959

**25 000**

d. 989

**1000**

h. 100 999

**101 000**

3. Round each number to the nearest 1000.

a. 1345

**1000**

b. 2789

**3000**

c. 1501

**2000**

d. 1499

**1000**

e. 9945

**10 000**

f. 27 478

**27 000**

g. 149 814

**150 000**

h. 999 999

**1 000 000**

4. Evelyn says that 657 rounded to the nearest 100 is 600 because the digit 6 is in the hundreds column. Is Evelyn correct? Explain your answer.

**Evelyn is incorrect. 657 rounded to the nearest 100 is 700.**

**657 has passed the midpoint between 600 and 700, so is closer to 700. Similarly, the decider digit (5) tells us that the 6 will round up to 7, hence 657 rounded to the nearest 100 is 700.**

5. A number rounded to the nearest 100 is 4600. What is the largest possible whole number it could be?

**4649**

6. A number rounded to the nearest 10 is 660. What is the smallest possible whole number it could be?

**655**

7. When a number is rounded to the nearest 100, it gives 300. When the same number is rounded to the nearest 10, it gives 350. The number is a whole number. What could the number be?

**Possible answers are 345, 346, 347, 348 or 349.**

8. Write 5 whole numbers that can be rounded to 72 000 when rounding to the nearest 1000.

**Any 5 whole numbers which are greater than or equal to 71 500 but are less than or equal to 72 499.**

### **Challenge**

I am a 2-digit number.

I am 70 when rounded to the nearest 10.

I am odd.

My tens digit is also odd.

Write down the two possible values of the number.

**71 and 73.**

# Rounding to the Nearest 10, 100 and 1000

## Prior Knowledge:

- Place values.
- Finding a midpoint between two numbers.

There are two key rounding rules which you should know:

If the deciding digit is less than 5 (0, 1, 2, 3 or 4), we round down.

If the deciding digit is 5 or more (5, 6, 7, 8 or 9), we round up.

Let's look at this in practice.

## Rounding to the Nearest 10

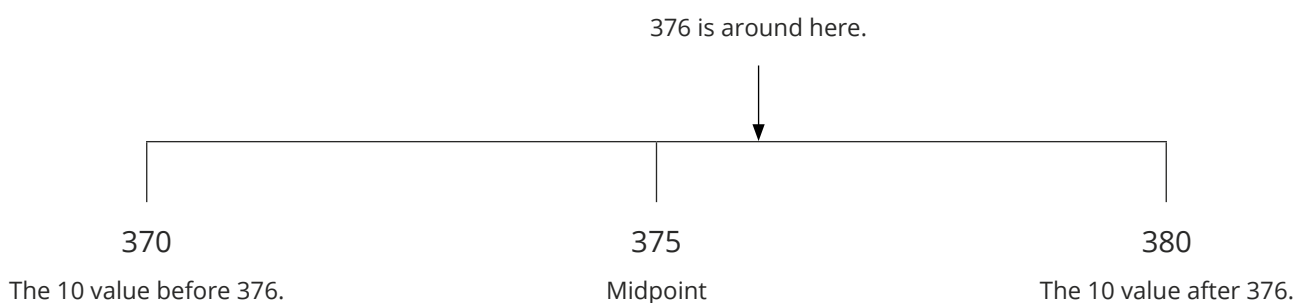
### Round to the nearest 10.

There are a couple of ways in which we can approach this question.

#### Method 1

We could use a diagram or a number line to help us. For example, we can identify that the digit in the tens position in 376 is 7, which is worth 70.

As we are rounding to the nearest 10, we are thinking about the multiples of 10. The 10 value before 376 is 370, and the 10 value after 376 is 380. This makes 375 the midpoint, half way between 370 and 380. Using a diagram, we can see that 376 is after 375; in other words, it is closer to 380 than to 370 because we have passed the midpoint.



Therefore, we can say that 376 is closer to 380, hence 376 rounded to the nearest 10 is 380.

However, we don't always have to use a diagram...

#### Method 2

If we take the same example, 376, we begin in a similar way by firstly identifying the column where we are being asked to round. In this case, we are rounding to the nearest 10 so we find the digit in the 10s position, which is 7.

## Rounding to the Nearest 10, 100 and 1000

Now, look at the digit in the column to the right of the 7. This digit will decide what happens to the 7 and is known as the 'decider'. It will determine whether the number will round up or round down, and therefore whether the digit in the rounding position will increase or stay the same.

3 7 | 6

In this case, the column immediately to the right of the tens column is the units column and contains the 'decider' digit, 6. If the decider digit is 5 or more, it tells us that we will round up. If it is 4 or less, it tells us that we will round down. By applying this rule, we see that we are rounding up, so the 7 needs to be increased to 8; in other words, 376 is closer to 380 than to 370 (just like the diagram).

It is vital that the place value of the original digits remains the same. For whole numbers, you will need to replace any rounded digits with the correct number of zeros.

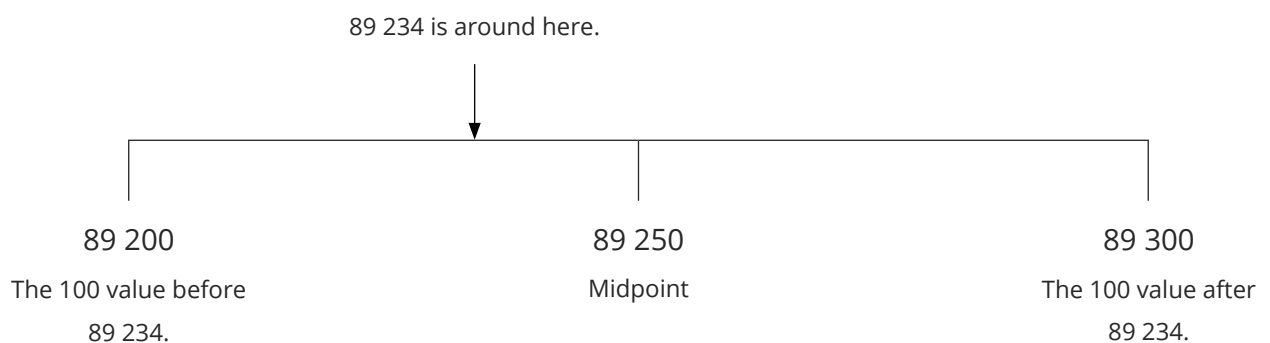
Therefore, 376 rounded to the nearest 10 is 380.

## Rounding to the Nearest 100

**Round 89 234 to the nearest 100.**

### Method 1

Begin by identifying the digit in the hundreds position: 2 (which is worth 200).



This time, we are rounding to the nearest 100, so we are thinking about the multiples of 100. The 100 value before 89 234 is 89 200, and the 100 value after 89 234 is 89 300. This makes 89 250 the midpoint.

Using a diagram, we can see that 89 234 is less than 250. In other words, 89 234 is closer to 89 200 than to 89 300, as we have not yet passed the midway point.

Therefore, 89 234 rounded to the nearest 100 is 89 200.

### Method 2

Again, start by identifying the column where we are being asked to round. In this case, we are rounding to the nearest 100 so we find the digit in the 100s position, which is 2.

Now, look at the digit and column to the right of the 2. This is the decider digit and determines whether we will be rounding up or down.

8 9 2 | 3 4

We can see that the decider digit here is 3. If the deciding digit is less than 5, then we are rounding down. This means the digit in the hundreds column (2) remains the same, and the following two numbers are replaced by 0s. If you're rounding down, to the nearest hundred, you do **not** change the number in the hundreds column, but don't forget to include the correct number of zeros after the hundreds column, so the place value of the original number remains the same.

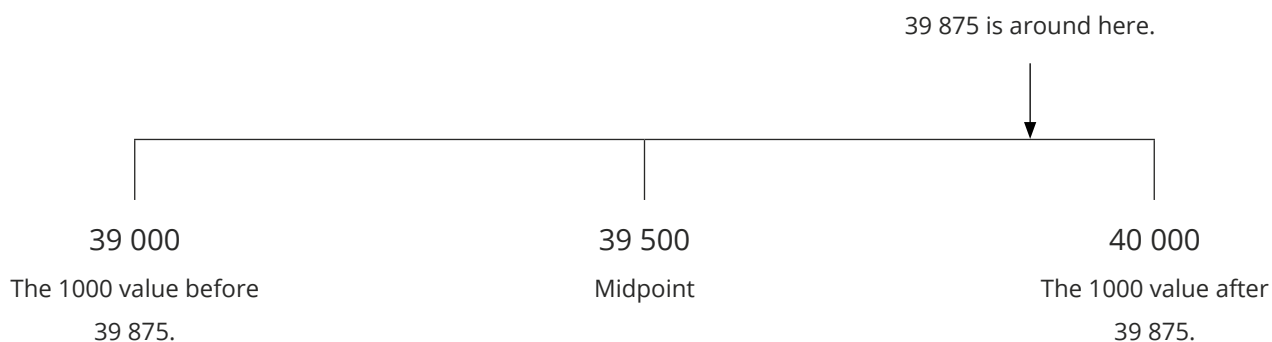
89 234 rounded to the nearest 100 is 89 200.

## Rounding to the Nearest 1000

**Round 39 875 to the nearest 1000.**

Rounding to the nearest 1000 follows similar steps to rounding to the nearest 10 or 100. Whichever method we choose, we start by identifying the digit in the thousands column: 9.

### Method 1



39 875 appears after the midway point, therefore, it's closer to 40 000.

39 875 rounded to the nearest 1000 is 40 000.

**Method 2**

Alternatively, find the decider digit in the number 39 875 and use this to determine the answer.

3 9 | 8 7 5

By applying the rounding rules, the decider digit (8) tells us that we are rounding up. This means the digit in the rounding position (9) needs to be increased. We need to be careful here. If we increase 9 by one we get 10, but we can't just squeeze 10 into the gap. Instead, we replace the 9 with a 0, and add the 1 to the column to the left (3). As usual, the 3 digits to the right of the thousands column are replaced by 0s, giving us 40 000.

39 875 rounded to the nearest 1000 is 40 000.

**Your Turn**

1. Round each number to the nearest 10.

a. 78

e. 4532

b. 123

f. 10 675

c. 565

g. 456 789

d. 1984

h. 9999

2. Round each number to the nearest 100.

a. 786

d. 989

b. 231

e. 15 499

c. 467

f. 103 475



**Rounding to the Nearest 10, 100 and 1000**

g. 24 959

h. 100 999

3. Round each number to the nearest 1000.

a. 1345

e. 9945

b. 2789

f. 27 478

c. 1501

g. 149 814

d. 1499

h. 999 999

4. Evelyn says that 657 rounded to the nearest 100 is 600 because the digit 6 is in the hundreds column. Is Evelyn correct? Explain your answer.

5. A number rounded to the nearest 100 is 4600. What is the largest possible whole number it could be?

6. A number rounded to the nearest 10 is 660. What is the smallest possible whole number it could be?

**Rounding to the Nearest 10, 100 and 1000**

7. When a number is rounded to the nearest 100, it gives 300. When the same number is rounded to the nearest 10, it gives 350. The number is a whole number. What could the number be?

8. Write 5 whole numbers that can be rounded to 72 000 when rounding to the nearest 1000.

**Challenge**

I am a 2-digit number.

I am 70 when rounded to the nearest 10.

I am odd.

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# Rounding to the Nearest 10, 100 and 1000

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## Rounding to the Nearest 10

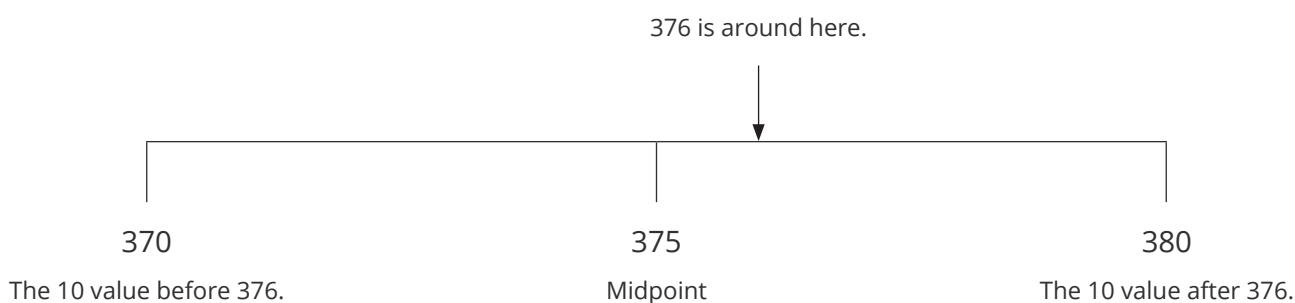
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However, we don't always have to use a diagram...

#### Method 2

If we take the same example, 376, we begin in a similar way by firstly identifying the column where we are being asked to round. In this case, we are rounding to the nearest 10 so we find the digit in the 10s position, which is 7.



### Method 2

Again, start by identifying the column where we are being asked to round. In this case, we are rounding to the nearest 100 so we find the digit in the 100s position, which is 2.

Now, look at the digit and column to the right of the 2. This is the decider digit and determines whether we will be rounding up or down.

8 9 2 | 3 4

We can see that the decider digit here is 3. If the deciding digit is less than 5, then we are rounding down. This means the digit in the hundreds column (2) remains the same, and the following two numbers are replaced by 0s. If you're rounding down, to the nearest hundred, you do **not** change the number in the hundreds column, but don't forget to include the correct number of zeros after the hundreds column, so the place value of the original number remains the same.

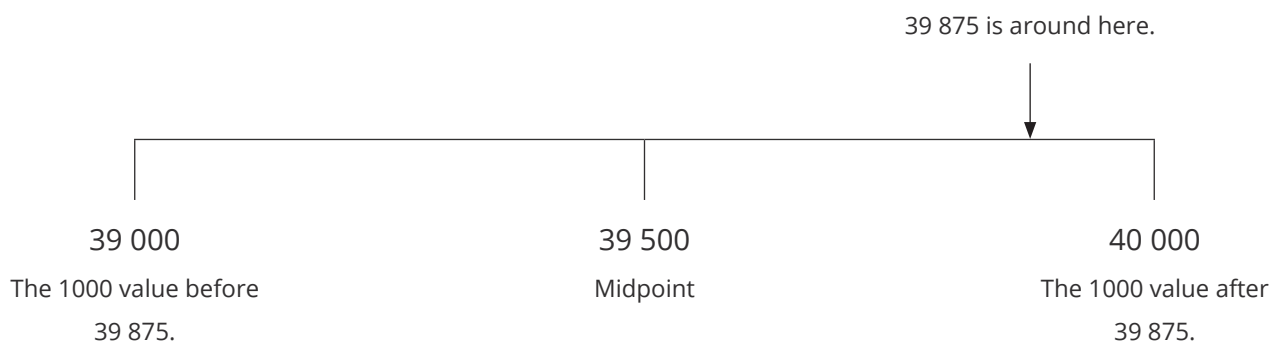
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