

Rounding Numbers

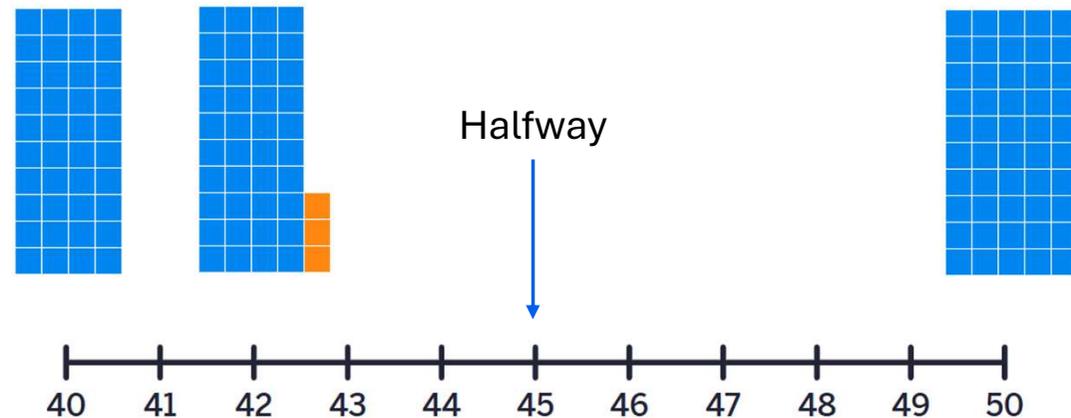
Rounding to the Nearest 10, 100, 1000

Rounding to the Nearest 10

How to Round to the Nearest 10

- **Build the number**
Use base-10 blocks. No blocks? Sketch or imagine them.
- **Find the two tens your number sits between**
Example: If your number is 42, it sits between **40** and **50**.
Build or sketch those too.
- **Find the halfway point**
What's halfway between the two tens?
Example: Halfway between 40 and 50 is **45**.
- **Place all three on a number line**
 - Lower ten (e.g. 40)
 - Halfway point (e.g. 45)
 - Upper ten (e.g. 50)
- **Check your number's position**
 - ↓ If it's **less than halfway**, round **down**
 - ↑ If it's **halfway or more**, round **up**
- **Say the final rounded number**
Example: 47 rounds **up** to **50**

Example: Round 42 to the nearest 10



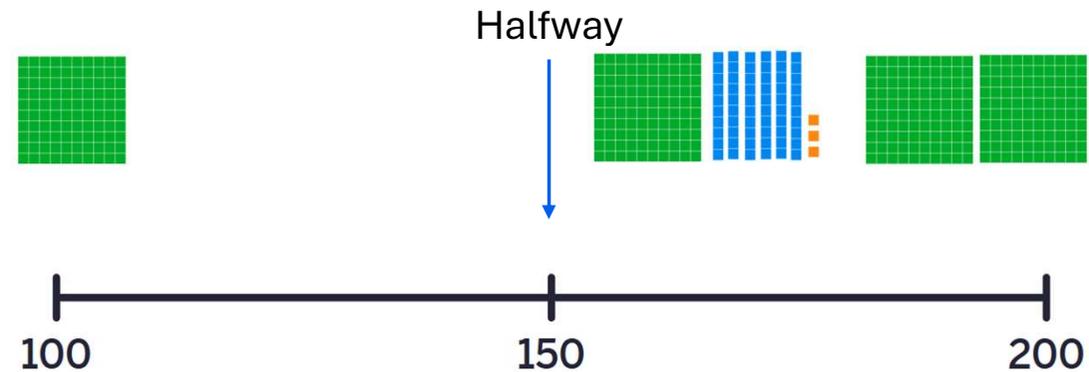
Answer: 40

Rounding to the Nearest 100

How to Round to the Nearest 100

- **Build the number**
Use base-10 blocks. No blocks? Sketch or imagine them.
- **Find the two hundreds your number sits between**
Example: If your number is 163, it sits between **100** and **200**.
Build or sketch those too.
- **Find the halfway point**
What's halfway between the two hundreds?
Example: Halfway between 100 and 200 is **150**.
- **Place all three on a number line**
 - Lower hundred (e.g. 100)
 - Halfway point (e.g. 150)
 - Upper hundred (e.g. 200)
- **Check your number's position**
 - ↓ If it's **less than halfway**, round **down**
 - ↑ If it's **halfway or more**, round **up**
- **Say the final rounded number**
Example: 163 rounds **up** to **200**

Example: Round 163 to the nearest 100



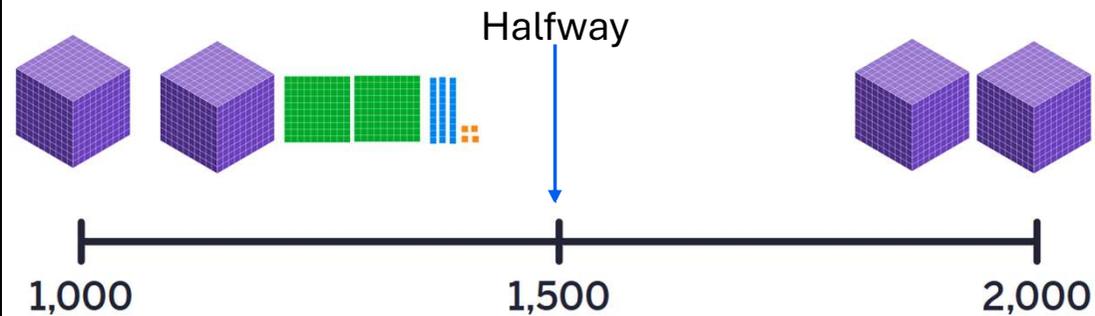
Answer: 200

Rounding to the Nearest 1000

How to Round to the Nearest 1000

- **Build the number**
Use base-10 blocks. No blocks? Sketch or imagine them.
- **Find the two thousands your number sits between**
Example: If your number is 1234, it sits between **1000** and **2000**.
Build or sketch those too.
- **Find the halfway point**
What's halfway between the two thousands?
Example: Halfway between 1000 and 2000 is **1500**.
- **Place all three on a number line**
 - Lower thousand (e.g. 1000)
 - Halfway point (e.g. 1500)
 - Upper thousand (e.g. 2000)
- **Check your number's position**
 - ↓ If it's **less than halfway**, round **down**
 - ↑ If it's **halfway or more**, round **up**
- **Say the final rounded number**
Example: 1234 rounds **down** to **1000**

Example: Round 1234 to the nearest 1000



Answer: 1000

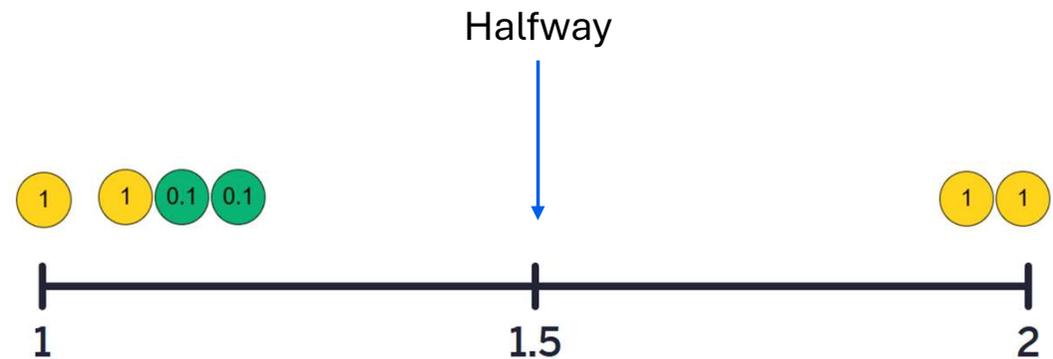
Rounding to the Nearest Whole Number

Rounding to the Nearest Whole Number

How to Round to the Nearest Whole Number

- **Build the number**
Use place value disks. No disks? Sketch or imagine them.
- **Find the two whole numbers your number sits between**
Example: If your number is 1.1, it sits between **1** and **2**.
Build or sketch those too.
- **Find the halfway point**
What's halfway between the two whole numbers?
Example: Halfway between 1 and 2 is **1.5**.
- **Place all three on a number line**
 - Lower whole number (e.g. 1)
 - Halfway point (e.g. 1.5)
 - Upper whole number (e.g. 2)
- **Check your number's position**
 - ↓ If it's **less than halfway**, round **down**
 - ↑ If it's **halfway or more**, round **up**
- **Say the final rounded number**
Example: 1.2 rounds **down to 1**

Example: Round 1.2 to the nearest whole number



Answer: 1

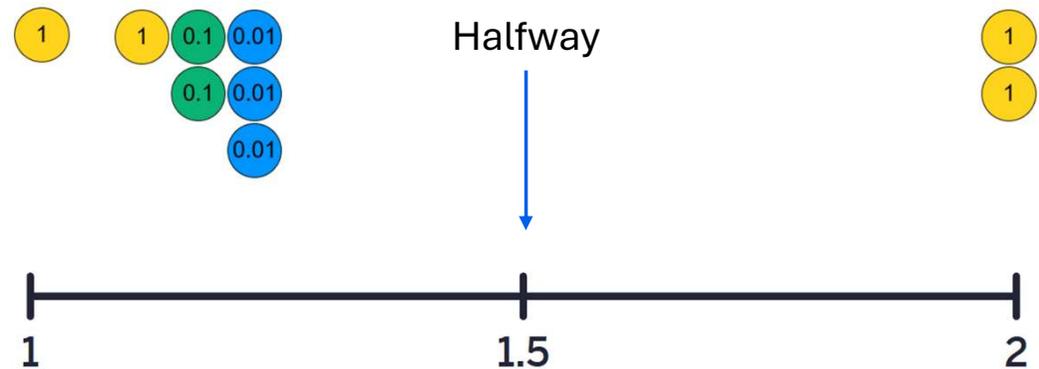
Rounding Decimal Numbers

Rounding to 1 Decimal Place

To Round to 1 Decimal Place:

- **Build the number**
Use place value disks. No disks? Sketch or imagine them.
- **Find the two nearest decimal numbers**
What two tenths does your number sit between?
Example: If your number is 1.23, it sits between **1.1** and **1.2**.
Build or sketch those too.
- **Find the halfway point**
What's halfway between the two tenths?
Example: Halfway between 1.1 and 1.2 is **1.15**.
- **Place all three on a number line**
 - Lower decimal (e.g. 1.1)
 - Halfway point (e.g. 1.15)
 - Upper decimal (e.g. 1.2)
- **Check your number's position**
 - ↓ If it's less than halfway, round down
 - ↑ If it's halfway or more, round up
- **Say the final rounded number**
Example: 1.23 rounds **down** to **1.2**

Example: Round 1.23 to 1 decimal place



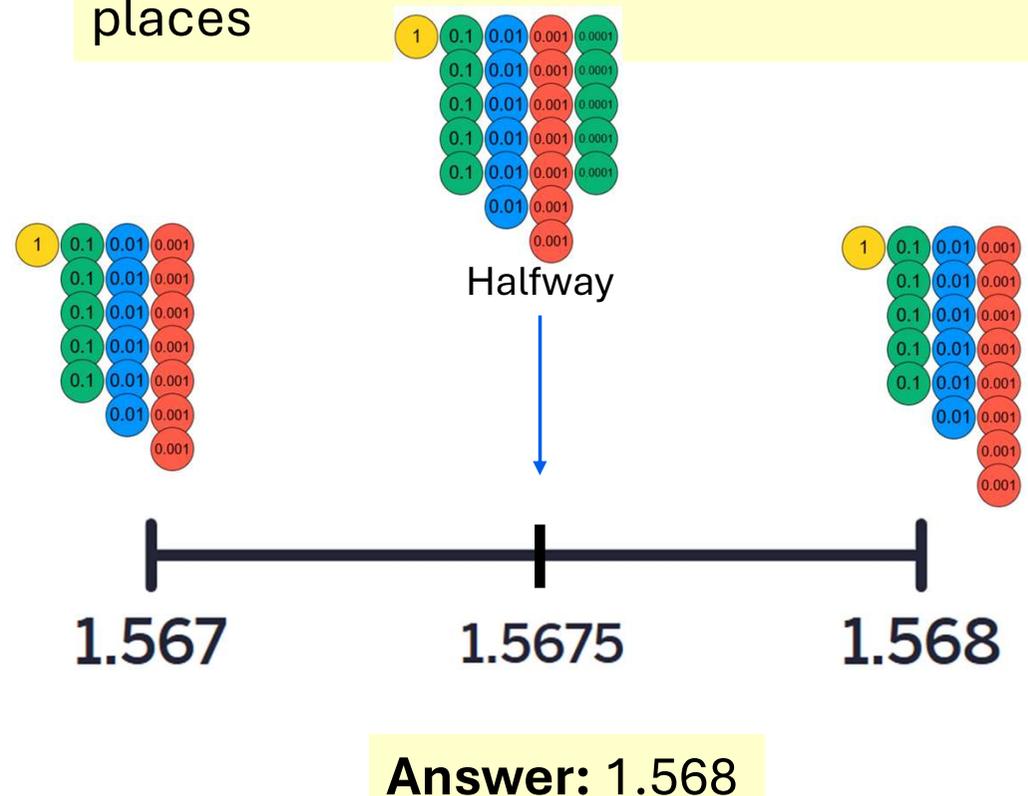
Answer: 1.2

Rounding to 3 Decimal Places

How to Round to 3 Decimal Places

- **Build the number**
Use place value disks. No disks? Sketch or imagine them.
- **Find the two thousandths your number sits between**
Example: If your number is **1.5675**, it sits between **1.567** and **1.568**.
Build or sketch those too.
- **Find the halfway point**
What's halfway between the two thousandths?
Example: Halfway between 1.567 and 1.568 is **1.5675**.
- **Place all three on a number line**
 - Lower thousandth (e.g. 1.567)
 - Halfway point (e.g. 1.5675)
 - Upper thousandth (e.g. 1.568)
- **Check your number's position**
 - ↓ If it's less than halfway, round down
 - ↑ If it's halfway or more, round up
- **Say the final rounded number**
Example: 1.5675 rounds up to **1.568**

Example: Round 1.5675 to 3 decimal places



Rounding to Significant Figures

What is a Significant Figure?

- A **significant figure** is a digit that **matters** in a number.
- It shows how **accurate** or **exact** the number is.
- **Digits that count:**
 - ✓ All numbers **1 to 9**
 - ✓ **Zeros** that are **between** numbers or **after a decimal**
- **Digits that don't count:**
 - ✗ Zeros before the first number (like in 0.04)

3.40 has **3 significant figures**

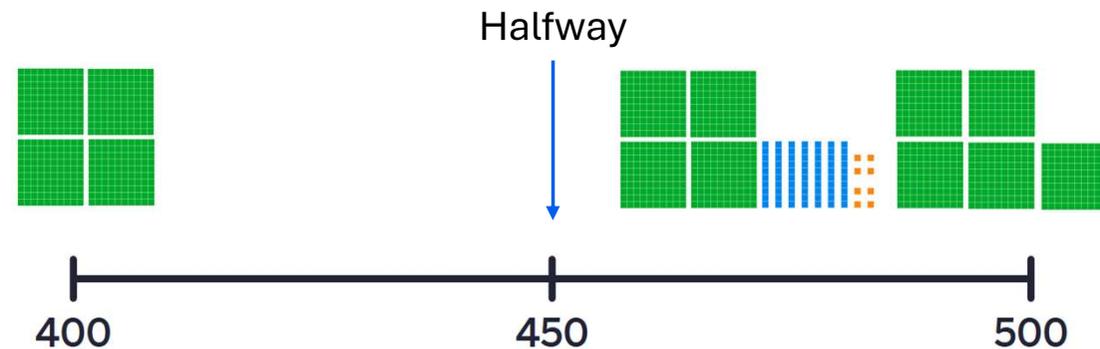
0.004 has **1 significant figure**

Rounding to 1 Significant Figure

How to Round to 1 Significant Figure

- **Build the number**
Use place value disks or base-10 blocks to show the digits.
No disks? Sketch or imagine them.
- **Find the two numbers your number sits between**
These are the two numbers with just **1 digit that matters**.
Example: If your number is **478**, the first digit that matters is in the hundreds, so it sits between **400** and **500**.
- **Find the halfway point**
What's halfway between those two numbers?
Example: Halfway between 400 and 500 is **450**.
- **Place all three on a number line**
 - Lower rounded number (e.g. 400)
 - Halfway point (e.g. 450)
 - Upper rounded number (e.g. 500)
- **Check your number's position**
 - ↓ If it's **less than halfway**, round **down**
 - ↑ If it's **halfway or more**, round **up**
- **Say the final rounded number**
Example: 478 rounds **up** to **500**

Example: Round 478 to 1 significant figure



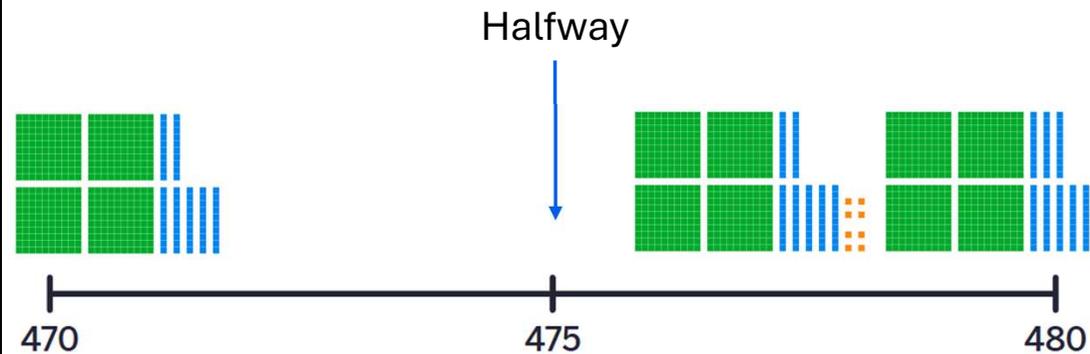
Answer: 500

Rounding to 2 Significant Figures

How to Round to 2 Significant Figures

- **Build the number**
Use place value disks or base-10 blocks to show the digits.
No disks? Sketch or imagine them.
- **Find the two numbers your number sits between**
These are the two numbers with just **2 digits that matter**.
Example: If your number is **478**, the first two digits are **4** and **7** – you are rounding to the nearest tens - so it sits between **470** and **480**.
- **Find the halfway point**
What's halfway between those two numbers?
Example: Halfway between 470 and 480 is **475**.
- **Place all three on a number line**
 - Lower rounded number (e.g. 470)
 - Halfway point (e.g. 475)
 - Upper rounded number (e.g. 480)
- **Check your number's position**
 - ↓ If it's **less than halfway**, round **down**
 - ↑ If it's **halfway or more**, round **up**
- **Say the final rounded number**
Example: **478** rounds up to **480**

Example: Round 478 to 2 significant figures



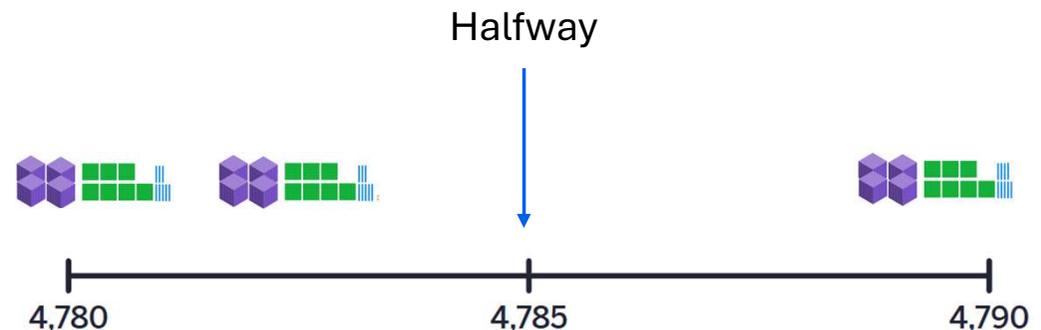
Answer: 480

Rounding to 3 Significant Figures

How to Round to 3 Significant Figures

- **Build the number**
Use place value disks or base-10 blocks to show the digits.
No disks? Sketch or imagine them.
- **Find the two numbers your number sits between**
These are the two numbers with just **3 digits that matter**.
Example: If your number is **4782**, the first three digits are **4, 7, and 8** – you are rounding to the tens - so it sits between **4780** and **4790**.
- **Find the halfway point**
What's halfway between those two numbers?
Example: Halfway between 4780 and 4790 is **4785**.
- **Place all three on a number line**
 - Lower rounded number (e.g. 4780)
 - Halfway point (e.g. 4785)
 - Upper rounded number (e.g. 4790)
- **Check your number's position**
 - ↓ If it's **less than halfway**, round **down**
 - ↑ If it's **halfway or more**, round **up**
- **Say the final rounded number**
Example: **4782 rounds down to 4780**

Example: Round 4782 to 3 significant figures



Answer: 4780

Acknowledgements

- Images were created using free virtual manipulatives by Amplify (available at [Polypad.com](https://www.polypad.com)) and [Mathsbot.com](https://www.mathsbot.com)