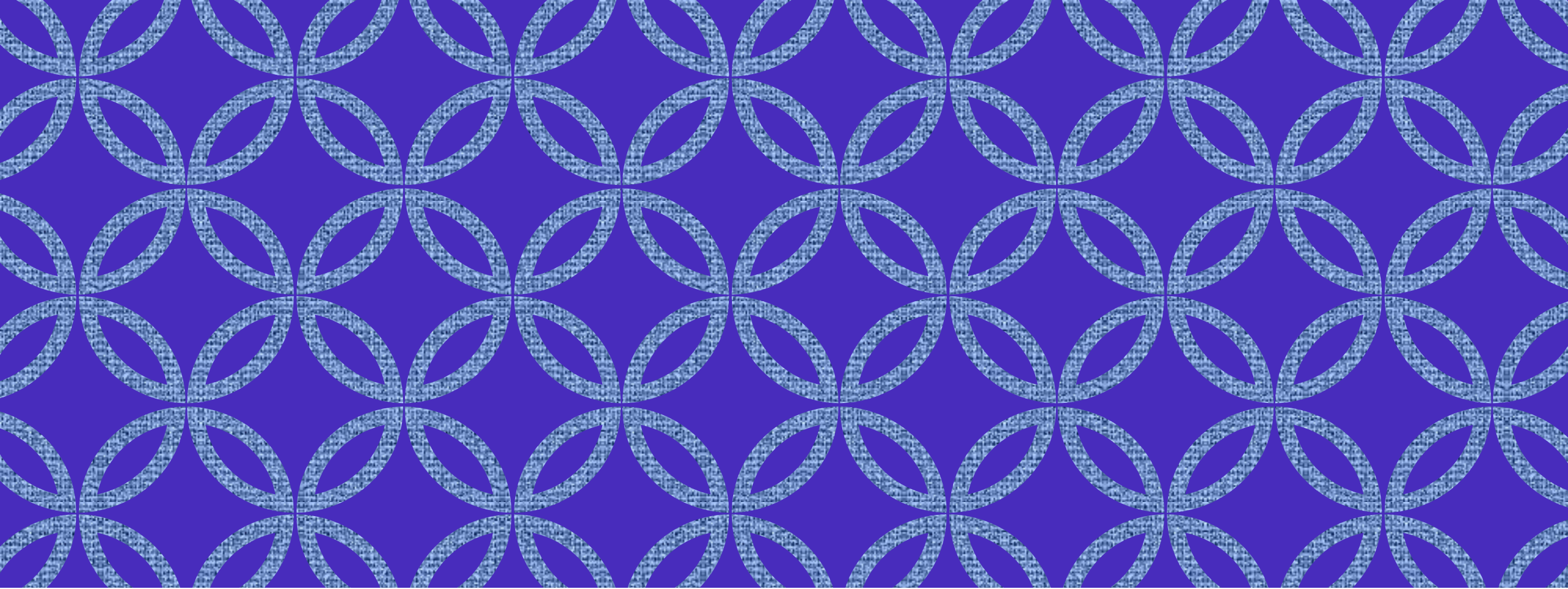




ROUNDING: SIGNIFICANT FIGURES

Lecturer: Mark Gillan

COMMONLY USED

- Newspapers and television might report a lottery jackpot winner having won something like 8 million, rounding the actual winnings to one significant figure

The method of rounding to a significant figure is often used

It can apply to any kind of number

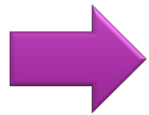
Doesn't matter if the number is small or big

THE PROCESS



8.4 million

8,392,018



8 million

- Rounding to the most important figure for the correct and actual number
- To round off to a significant figure:
 - If 1 s.f. – consider the first non-zero digit
 - If 2 s.f. – consider the number after the first non-zero digit
- Look at the next digit to decide upon rounding up, then fill spaces to the right with zeros (the lottery win amount example)
- Remember the rule of 5 or more ... increase the previous digit by one, otherwise keep the previous digit the same value

EXAMPLES

- Rounding 93,789 to 1 significant figure
- Draw a line at the first non-zero digit
9 | 3789
- The first non-zero figure is the 9
- The next figure is 3
- Therefore, to 1 significant figure, we would say this amount is 90,000
- The same 93,789 to 2 s.f.
- Draw a line after the second non-zero digit ... 93 | 789
- The second non-zero figure is the 3
- The next figure is 7
- Therefore, to 2 significant figures, we would say this amount is 94,000

MORE EXAMPLES — WITH ZEROS

- Rounding 0.070872 to 1 s.f.
- Draw a line at the first non-zero digit...
0.07|0872
- The first non-zero figure is the 7
- The next figure is 0
- Therefore, to 1 significant figure, we would say this value is 0.07
- The same 0.070872 to 2 s.f.
- A line after the second non-zero digit...
0.070|872
- The second non-zero figure is the 0 after the 7
- The next figure is 8
- Therefore, to 2 significant figures, we would say this amount is 0.071

TRY THESE ...

- What is 98,329 to 1 s.f. ?
- What is the same 98,329 to 2 s.f. ?
- What is 4.5182 to 1 s.f. ?
- What is the same 4.5182 to 2 s.f. ?



THE ANSWERS...

- What is 98,329 to 1 s.f. ?

ANSWER: **100,000**

- What is the same 98,329 to 2 s.f. ?

ANSWER: **98,000**

- What is 4.5182 to 1 s.f. ?

ANSWER: **5**

- What is the same 4.5182 to 2 s.f. ?

ANSWER: **4.5**



THANK YOU AND SUMMARY



Summary

- 1 significant figure – look at the first non-zero digit
- 2 significant figure – look at the digit AFTER the first non-zero digit
- Consider the next digit
- If that next digit is 5 or more – increase the previous digit
- If that next digit is less than 5 – keep the previous digit the same