

Mathematics

# **Number systems- Rounding in different bases worksheet**

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## Try this

We are used to rounding numbers based on place value.

Round to the  
nearest 10

Round to the  
nearest 100

Round to the  
nearest 1000

1) Come up with rules for rounding to the nearest 5, 50 and 500

What is the smallest number that rounds to 5, 50 or 500?

What is the largest number that rounds to 5, 50 or 500?

What similarities and differences are there with rounding to the nearest 10, 100 and 1000?

2) When rounding to the nearest 500, what is the smallest number that rounds to 10000?



# Connect

100s	10s	1s

49s	7s	1s

Write  $34_{10}$  in base 7.

Round to the nearest  $10_7$ .

How does this compare to rounding  $34_{10}$  to the nearest  $10_{10}$ ?

How do you decide whether to round up or down?



# Connect

100s	10s	1s

25s	5s	1s

Write  $34_{10}$  in base 5.

Round to the nearest  $10_5$ .

How does this compare to rounding  $34_{10}$  to the nearest  $10_{10}$ ?

How do you decide whether to round up or down?



# Connect

100s	10s	1s

64s	8s	1s

Write  $34_{10}$  in base 8.

Round to the nearest  $10_8$ .

How does this compare to rounding  $13_{10}$  to the nearest  $10_{10}$ ?

How do you decide whether to round up or down?



# Independent task

- 1) Round  $23_5$  to the nearest  $10_5$
- 2) Round  $12_7$  to the nearest  $10_7$
- 3) Round  $13_6$  to the nearest  $10_6$
- 4) Round  $21_4$  to the nearest  $10_8$
- 5) Round  $103_8$  to the nearest  $100_8$

What do you notice when rounding even and odd bases?

How do you decide to round up or down?



# Explore

Design a decimal place value grid for base 5.

Fives	Ones	•	....	....	....
		•			

Is it possible to write decimals in base 10 and base 5?

Find numbers where its possible

What do you notice about them?

What numbers can not be written in both bases? Why?

Should we  
use the  
word  
**'decimal'** in  
base 5?

