

Upper and lower bounds

STARTER

Round 5435.52 to the...

Nearest Ten	Nearest Integer	Nearest Hundred	Nearest Thousand	1 decimal place	1 significant figure

Round 73.99 to the ...

Nearest Five	1 decimal place	2 decimal places	2 significant figures	3 significant figures

1. Here are some multiple choice questions. Which answer is correct and why?

A number, rounded to the nearest 10, is 40. What is the **lower** bound?

35

45

34.9

A number, rounded to the nearest 10, is 40. What is the **upper** bound?

45.9

45

49.5

A number, rounded to the nearest integer, is 4. What is the **upper** bound?

3.5

4.5

45

A number, rounded to the nearest 100, is 400. What is the **lower** bound?

305

350

349

A number, rounded to the nearest 100, is 400. What is the **upper** bound?

450

400.5

405

A number, rounded to 1 decimal place, is 4.5. What is the **upper** bound?

4.549

4.5

4.55

A number, rounded to 1 significant figure, is 50. What is the **upper** bound?

50

50.5

55

A number, rounded to nearest 5, is 25. What is the **lower** bound?

22.5

20

24.5

A number, rounded to nearest 5, is 70. What is the **upper** bound?

75

75.5

72.5

Upper and lower bounds

2. Fill in the blanks from the table.

Number	Rounding	Lower bound	Upper bound	Error interval
4	Nearest integer	3.5	4.5	
40	Nearest ten			$35 \leq x < 45$
40	Nearest integer	39.5	40.5	
50	Nearest integer	49.5		
50	Nearest ten		55	
550		545		
5.5	1 decimal place			
55.5	1 decimal place			
89.6	1 decimal place			
50	1 significant figure			

3. Fill in the blanks

Number	Rounding	Lower bound	Upper bound	Error interval
30	Nearest five	27.5	32.5	
35	Nearest five			
45	Nearest five			
4	Nearest even	3	5	
8	Nearest even			
29	Nearest prime			

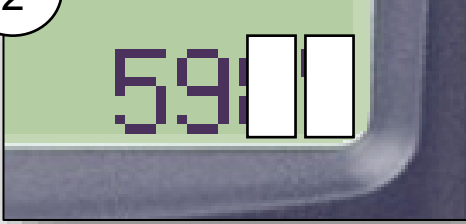
Upper and lower bounds

4. For each screen: what's the biggest the number could have been? What's the smallest? Write your answer as **error interval**.

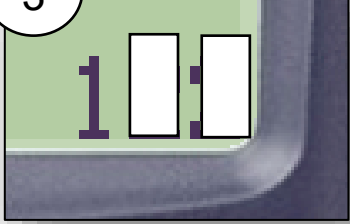
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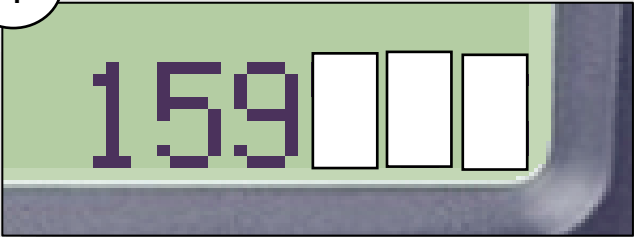
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3



4



5

159000 has been truncated to 3 significant figures. Write down the error interval of the number.

5. Here are some species of animal, and their numbers left in the wild (according to the WWF). Find their upper and lower bounds.

Animal	Number left	Rounding	Lower Bound	Upper Bound
African elephant	415,000	Nearest 1000		415,499
Amur leopard	60	Nearest 10		
Black rhino	5,500	Nearest 100		
Galápagos penguin	2,000	Nearest 1000		
Greater sage-grouse	100,000	Nearest 100,000		
Vaquita dolphin	10	Nearest 5		
Sundra tiger	"Under 400"	?!?		

