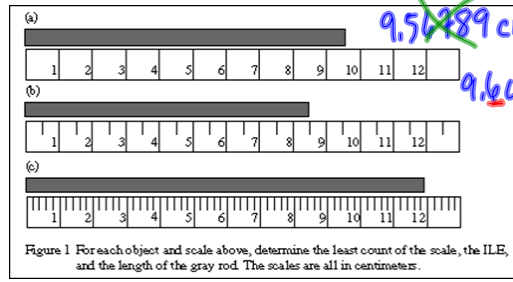


# Significant Digits



Least Count

1 cm

0.5 cm

0.2 cm

more precise

When you record any measurement, you always have to guess at the last digit.

(uncertain digit)

32 cm → 2 sd  
 ↑ certain digit    ↑ uncertain digit

35.8 cm → 3 sd  
 ↑ certain digits    ↑ uncertain digit

\* When counting significant digits, you count all the certain digits and the ONE uncertain digit

## Basic Skill

17. 2.9910 m → 5 sd  
 ↑ certain    ↑ uncertain digit

19. 0.00670 kg → 3 sd  
 ↑ certain    ↑ uncertain digit  
 leading zeroes are place holders.

20. 809 g → 3 sd

18. 5600 km → 2 sd (could be 3 or 4 sd depending on the precision of the measuring instrument)  
 5.6 × 10<sup>3</sup> km → 2 sd  
 5.60 × 10<sup>3</sup> km → 3 sd  
 5.600 × 10<sup>3</sup> km → 4 sd

**Rules For Significant Digits**

You can remember these rules or think of it simply in terms of counting your certain digits and the one guessed or uncertain digit.

1. Digits from 1-9 are always significant.
2. Zeros between two other significant digits are always significant
3. One or more additional zeros to the right of both the decimal place and another significant digit are significant.
4. Zeros used solely for spacing the decimal point (placeholders) are not significant.

EXAMPLES	# OF SIG. DIG.	COMMENT
453 kg	3	All non-zero digits are always significant.
5057 L	4	Zeros between 2 sig. dig. are significant.
5.00 m	3	Additional zeros to the right of decimal and a sig. dig. are significant.
0.007 cm	1	Placeholders are not sig.
2500 g	2	How do you know what the uncertain digit is? It is best to write in scientific notation to clearly show the intended precision of the measurement.
$2.500 \times 10^3$ g	4	The precision is clearly shown.