Significant Figures and pH.

SF in Log $[5.23 \times 10^{+2}]$?

Logarithms are composed of a **mantissa** and a **character**.

log(5.23) = 0.7185017   the mantissa 3 S.F.

$\log(10^2) = 2$ the character, power of 10 an <u>exact number</u>

Log $[5.23 \times 10^{+2}] = 2.719$ (with appropriate significant figures)

Significant figure rules for logs/antilogs:

example,   log ($\underline{1.293} \times 10^3$) = 3.1115985 = 3.<u>1116</u>

antilog (15.<u>92</u>) = $8.3176 \times 10^{+15}$ = <u>8.3</u> $\times 10^{+15}$

Remember that pH = -log[H^+] so for

[H^+] = <u>2.67</u>e-6

pH = 5.<u>573</u>

Example: pH = 8.<u>91</u>

[H^+] = $10^{-8.91}$ = <u>1.2</u>e-9