Logs and Antilogs Practice 1

Being able to calculate logarithms in your head is an essential skill for solving many GAMSAT questions relating to pH, pKa and other topics. If you get stuck, I recommend watching these tutorial videos:

- Logs - https://www.youtube.com/watch?v=XDoFKQmOZbk
- Antilogs - https://www.youtube.com/watch?v=daEACIh9rg4

1) $-\log(0.001)$

2) $-\log(1\times10^{-4})$

3) $-\log(1\times10^{-11})$

4) $-\log(1\times10^{-14})$

5) $-\log(3\times10^{-3})$

6) $-\log(5\times10^{-7})$

7) $-\log(8\times10^{-7})$

8) $-\log(10\times10^{-11})$

9) $-\log(6.7\times10^{-4})$

10) $-\log(9\times10^{-2})$

11) Antilog 5

12) Antilog 8

13) Antilog 7.3

14) Antilog 9.1

15) Antilog 11.5

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Solutions

1) $-\log(0.001) = \mathbf{-\log(1x10^{-3}) = 3}$

2) $-\log(1x10^{-4}) = \mathbf{4}$

3) $-\log(1x10^{-11}) = \mathbf{11}$

4) $-\log(1x10^{-14}) = \mathbf{14}$

5) $-\log(3x10^{-3}) = \mathbf{2.5}$

6) $-\log(5x10^{-7}) \mathbf{= 6.3}$

7) $-\log(8x10^{-7}) = \mathbf{6.1}$

8) $-\log(10x10^{-11}) = \mathbf{-\log(1 \times 10^{-10}) = 10}$

9) $-\log(6.7 \times 10^{-4}) \approx$ **between 3.1 and 3.3 (exactly 3.17)**

10) $-\log(9x10^{-2}) \approx$ **between 1.1 and 1.0 (exactly 1.05)**

11) Antilog 5 = $\mathbf{1x10^{-5}}$

12) Antilog 8 = $\mathbf{1x10^{-8}}$

13) Antilog 7.3 = $\mathbf{5x10^{-8}}$

14) Antilog 9.1 **=** $\mathbf{8x10^{-10}}$

15) Antilog 11.5 = $\mathbf{3x10^{-12}}$