

Chemistry

In chemistry Example 3.3, how do you do the math?

In the first part of this example, you have

$$(6.63 \times 10^{-34} \text{ J/Hz}) \times (2.3 \times 10^{16} \text{ Hz})$$

You multiply the numbers:

$$6.63 \times 2.3 = 15$$

then the exponents. Since you are multiplying, you add the exponents:

$$(10^{-34}) \times (10^{16}) = 10^{(-34 + 16)} = 10^{-18}$$

Thus, the answer is 15×10^{-18} , but that is not standard. To make it standard, you must divide 15 by 10 to get 1.5. This means you must multiply 10^{-18} by 10 to get 10^{-17} . The answer, then, is

$$1.5 \times 10^{-17} \text{ J}$$

Now, having done all that, if you have a scientific calculator, it allows you to input the numbers in scientific notation and it does all of this for you. If you have a scientific calculator, read the manual to find out how to do this or try to find a demonstration on YouTube.

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