Chemistry 141 Name Key

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Quiz 10 (20 points) December 9, 2008

All work must be shown to receive credit.

Given the reaction A + 2B <=> 2C + 2D with a Kc = 0.0134M at a certain temperature. Calculate the equilibrium concentrations of all species when 6.21 moles of A and 3.44 moles of B are placed in a 1.00 L sealed container at that temperature.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | A | + | 2B | ⬄ | 2C | + | 2D |
| I | 6.21 M |  | 3.44 M |  | 0 M |  | 0 M |
|  | −x |  | −2x |  | +2x |  | +2x |
| E | (6.21−x) M |  | (3.44−2x) M |  | (2x) M |  | (2x) M |
|  | 6.21−.42  =5.79 M |  | 3.44−2(.42)  =2.60 M |  | 2(.42)  =0.84 M |  | 2(.42)  =0.84 M |

1st iteration

2nd iteration

3rd iteration

4th iteration

5th iteration

It has converged!!!

[A] = 5.79 M

[B] = 2.60 M

[C] = 0.84 M

[D] = 0.84 M