quiz 3.

| ## | A | B | C |
|---|---|---|---|
| ##0 | 1 | 2 | NaN |
| ##1 | 3 | 4 | 3.0 |
| ##2 | 8 | 7 | 5.0 |
| ##3 | 8 | 9 | 7.0 |

$$d^2(0,1) = \left(\sqrt{\frac{3}{2}[(1-3)^2+(2-4)^2]}\right)^2 = \left(\sqrt{12}\right)^2 = (2\sqrt{3})^2 = 12$$

$$d^2(0,2) = \left(\sqrt{\frac{3}{2}[(1-8)^2+(2-7)^2]}\right)^2 = \left(\sqrt{111}\right)^2 = \left(\sqrt{111}\right)^2 = 111$$

$$d^2(0,3) = \left(\sqrt{\frac{3}{2}[(1-8)^2+(2-9)^2]}\right)^2 = \left(\sqrt{147}\right)^2 = (7\sqrt{3})^2 = 147$$

using KNNImputer with $k=2$ we choose 1 and 2 rows to impute.

so imputation value $= \dfrac{\left(\frac{1}{12}\times 3 + \frac{1}{111}\times 5\right)}{\left(\frac{1}{12}+\frac{1}{111}\right)} = \dfrac{\left[\left(\frac{1}{12}\times 3\right)+\left(\frac{1}{111}\times 5\right)\right]\times 444}{\left(\frac{1}{12}+\frac{1}{111}\right)\times 444} = \dfrac{131}{41} = 3+\dfrac{8}{41}$

$\approx 3.2$