

2018 TARML I9

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Let x and y be real numbers such that

$$\sin^2 x \cos^2 y + \cos^2 x = \frac{3}{4}.$$

Compute

$$\sin^2 y \cos^2 x + \cos^2 y.$$

Observe that

$$\sin^2 y \cos^2 x + \cos^2 y = (1 - \cos^2 y) \cos^2 x + (\sin^2 x + \cos^2 x) \cos^2 y = \sin^2 x \cos^2 y + \cos^2 x,$$

so the answer is just $\boxed{\frac{3}{4}}$.

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