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Let r be an irrational number.

I know and can prove that $\{ k * r \bmod 1 \mid k \text{ is integer} \}$ is dense in $[0,1]$.

My question is -- Is $\{ (k^2) * r \bmod 1 \mid k \text{ is integer} \}$ dense in $[0,1]$?

Thanks!

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