

MA416 Weekly Challenge 5

Let R be the ring of diagonal matrices in $M_2(\mathbb{Z})$. Give an example, with explanation, of an ideal of R that is not principal.

(Recall that a 2×2 matrix is diagonal if its upper right and lower left entries are zero.)

Please upload your answer to the Canvas “Challenge 5” assignment by Friday November 8. You do not need to type it (a photograph is fine). Explain your example as clearly as you can, so that it would be interesting and informative for a reader. Cite any sources that you use.