# Distinguishing Hecke eigenforms and irreducibility of Hecke polynomials

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Explicit Theory of Automorphic Forms
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## Question (A)

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## Question (B)

*Can Maeda's conjecture be generalized to higher levels?*

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### Question (B)

*Can Maeda's conjecture be generalized to higher levels?*

| $N$ | $K$ for distinguishability | $K$ for Maeda |
|:---:|:---:|:---:|
| 7 | 6 | 2 |
| $2 \cdot 5$ | 10 | 2 |
| 11 | 4 | 2 |
| 13 | 4 | 2 |
| $2 \cdot 7$ | 8 | 2 |
| $2 \cdot 3 \cdot 5$ | 14 | 2 |
| $3 \cdot 11$ | 4 | 14 |
| 41 | 2 | 22 |

# Some non-squarefree data for distinguishability

| $N$ | $K$ | $n_0$ |
|:---:|:---:|:---:|
| $2^3$ | 8 | 3 |
| $3^2$ | 8 | 2 |
| $2^2 \cdot 3$ | 20 | 5 |
| $2^4$ | 6 | 3 |
| $2 \cdot 3^2$ | 10 | 5 |
| $2^2 \cdot 5$ | 8 | 3 |
| $5^2$ | 4 | 2 |

| $N$ | 2 | 6 | 8 | 10 | 12 | 14 | 16 | 18 |
|---|---|---|---|---|---|---|---|---|
| $7^2$ | 0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| $2 \cdot 7^2$ | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| $2^2 \cdot 3^3$ | 0 | 7 | 7 | 5 | 7 | 5 | 5 | 7 |
| $3 \cdot 7^2$ | 3 | 5 | 3 | 3 | 3 | 3 | | |
| $3^2 \cdot 5^2$ | 7 | 7 | 7 | 7 | 7 | 7 | | |