

$m = 10\alpha + \beta$ ($\alpha = 0, 1, \dots, \beta = 1, 2, \dots, 10$) とおく.

$$5m^4 = 5(100\alpha^2 + 20\alpha\beta + \beta^2)^2 = 5(10000\alpha^4 + 4000\alpha^2\beta^2 + \beta^4 + 4000\alpha^3\beta + 200\alpha^2\beta^2 + 400\alpha\beta^3)$$

$$= 50000\alpha^4 + 20000\alpha^2\beta^2 + 5\beta^4 + 20000\alpha^3\beta + 1000\alpha^2\beta^2 + 200\alpha\beta^3 = 100(500\alpha^4 + 200\alpha^2\beta^2 + 200\alpha^3\beta + 10\alpha^2\beta^2 + 2\alpha\beta^3) + 5\beta^4$$

よって $m = 1, 2, \dots, 10$ のときのみを考えるとよい.

- $m=1$ のとき $m^4=1, 5m^4=5$
- $m=2$ " $m^4=16, 5m^4=80$
- $m=3$ " $m^4=81, 5m^4=405$
- $m=4$ " $m^4=256, 5m^4=1280$
- $m=5$ " $m^4=625, 5m^4=3125$
- $m=6$ " $m^4=1296, 5m^4=6480$
- $m=7$ " $m^4=2401, 5m^4=12005$
- $m=8$ " $m^4=4096, 5m^4=20480$
- $m=9$ " $m^4=6561, 5m^4=32805$
- $m=10$ " $m^4=10000, 5m^4=50000$

$\begin{array}{r} 16 \\ \times 16 \\ \hline 96 \\ 160 \\ \hline 256 \\ \times 5 \\ \hline 1280 \end{array}$	$\begin{array}{r} 25 \\ \times 25 \\ \hline 125 \\ 500 \\ \hline 625 \\ \times 5 \\ \hline 3125 \end{array}$	$\begin{array}{r} 36 \\ \times 36 \\ \hline 216 \\ 1080 \\ \hline 1296 \\ \times 5 \\ \hline 6480 \end{array}$	$\begin{array}{r} 49 \\ \times 49 \\ \hline 441 \\ 1960 \\ \hline 2401 \\ \times 5 \\ \hline 12005 \end{array}$	$\begin{array}{r} 64 \\ \times 64 \\ \hline 256 \\ 3840 \\ \hline 4096 \\ \times 5 \\ \hline 20480 \end{array}$	$\begin{array}{r} 81 \\ \times 81 \\ \hline 648 \\ 6561 \\ \hline 6561 \\ \times 5 \\ \hline 32805 \end{array}$
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以上より 0, 5, 25, 80