

Part A Q2

| Q^2 | count | RT | Rem | Binary |
|------------------|-------|-------|-------|------------------|
| $2^{15} = 32768$ | 1 | 32768 | 12233 | 1000000000000000 |
| $2^{14} = 16384$ | 0 | 32768 | 12233 | 1000000000000000 |
| $2^{13} = 8192$ | 1 | 40960 | 4041 | 1010000000000000 |
| $2^{12} = 4096$ | 0 | 40960 | 4041 | 1010000000000000 |
| $2^{11} = 2048$ | 1 | 43008 | 1993 | 1010100000000000 |
| $2^{10} = 1024$ | 0 | 43008 | 1993 | 1010100000000000 |
| $2^9 = 512$ | 1 | 44483 | 1475 | 1010101000000000 |
| $2^8 = 256$ | 1 | 44739 | 1219 | 1010101100000000 |
| $2^7 = 128$ | 1 | 44867 | 1091 | 1010101110000000 |
| $2^6 = 64$ | 1 | 44931 | 1027 | 1010101111000000 |
| $2^5 = 32$ | 1 | 44963 | 995 | 1010101111100000 |
| $2^4 = 16$ | 1 | 44979 | 979 | 1010101111110000 |
| $2^3 = 8$ | 1 | 44987 | 971 | 1010101111111000 |
| $2^2 = 4$ | 1 | 44981 | 967 | 1010101111111100 |
| $2^1 = 2$ | 1 | 44983 | 965 | 1010101111111110 |
| $2^0 = 1$ | 1 | 44982 | 964 | 1010101111111111 |

$$= 1010101111111111$$