The multiplication tables modulo n

Format is: first row is the modulus followed by the first factor Remaining rows are the second factor, followed by the product modulo n

| 2 | 0 | 1 |
|---|---|---|
| 0 | 0 | 0 |
| 1 | 0 | 1 |

| 3 | 0 | 1 | 2 |
|---|---|---|---|
| 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 |
| 2 | Ω | 2 | 1 |

| 6 | 0 | 1 | 2 | 3 | 4 | 5 |
|--------|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | | | 3 | 4 | 5 |
| 1 2 | 0 | 2 | 4 | 0 | 2 | 4 |
| 3 | 0 | 3 | 0 | 3 | 0 | 3 |
| 4 | 0 | 4 | 2 | 0 | 4 | 2 |
| 5 | 0 | 5 | 4 | 3 | 2 | 1 |

| 7 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 2 | 0 | 2 | 4 | 6 | 1 | 3 | 5 |
| 3 | 0 | 3 | 6 | 2 | 5 | 1 | 4 |
| 4 | 0 | 4 | 1 | | 2 | 6 | 3 |
| 5 | 0 | 5 | | 1 | 6 | 4 | 2 |
| 6 | 0 | 6 | | 4 | 3 | 2 | 1 |

| 8 | (|)] | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|-----|------|---|---|---|---|---|
| 0 | (|) (| 0 (| 0 | 0 | 0 | 0 | 0 |
| 1 | (|)] | 2 | 3 | 4 | 5 | 6 | 7 |
| 2 | C |) 2 | 2 4 | 6 | 0 | 2 | 4 | 6 |
| 3 | C |) : | 6 | 1 | 4 | 7 | 2 | 5 |
| 4 | C |) 4 | 1 0 | 4 | 0 | 4 | 0 | 4 |
| 5 | C |) 5 | 5 2 | 7 | 4 | 1 | 6 | 3 |
| 6 | (|) (| 6 4 | 2 | 0 | 6 | 4 | 2 |
| 7 | (|) 7 | 7 6 | 5 | 4 | 3 | 2 | 1 |

| 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 2 | 0 | 2 | 4 | 6 | 8 | 1 | 3 | 5 | 7 |
| 3 | 0 | 3 | 6 | 0 | 3 | | 0 | 3 | 6 |
| 4 | 0 | 4 | 8 | 3 | | | | 1 | 5 |
| 5 | 0 | 5 | 1 | 6 | 2 | 7 | 3 | 8 | 4 |
| 6 | 0 | 6 | 3 | 0 | 6 | 3 | 0 | 6 | 3 |
| 7 | 0 | 7 | 5 | 3 | 1 | 8 | 6 | 4 | 2 |
| 8 | 0 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| | | | | | | | | | |

| 10 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|----|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 2 | 0 | 2 | 4 | 6 | 8 | 0 | 2 | 4 | 6 | 8 |
| 3 | 0 | 3 | 6 | 9 | 2 | 5 | 8 | 1 | 4 | 7 |
| 4 | 0 | 4 | 8 | 2 | 6 | 0 | 4 | 8 | 2 | 6 |
| 5 | 0 | 5 | 0 | 5 | 0 | 5 | 0 | 5 | 0 | 5 |
| 6 | 0 | 6 | 2 | 8 | 4 | 0 | 6 | 2 | 8 | 4 |
| 7 | 0 | 7 | 4 | 1 | 8 | 5 | 2 | 9 | 6 | 3 |
| 8 | 0 | 8 | 6 | 4 | 2 | 0 | 8 | 6 | 4 | 2 |
| 9 | 0 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| | • | | | | | | | | | |

| 11 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----|---|----|----|----|----|----|----|----|----|----|----|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 2 | 0 | 2 | 4 | 6 | 8 | 10 | 1 | 3 | 5 | 7 | 9 |
| 3 | 0 | 3 | 6 | 9 | 1 | 4 | 7 | 10 | 2 | 5 | 8 |
| 4 | 0 | 4 | 8 | 1 | 5 | 9 | 2 | 6 | 10 | 3 | 7 |
| 5 | 0 | 5 | 10 | 4 | 9 | 3 | 8 | 2 | 7 | 1 | 6 |
| 6 | 0 | 6 | 1 | 7 | 2 | 8 | 3 | 9 | 4 | 10 | 5 |
| 7 | 0 | 7 | 3 | 10 | 6 | 2 | 9 | 5 | 1 | 8 | 4 |
| 8 | 0 | 8 | 5 | 2 | 10 | 7 | 4 | 1 | 9 | 6 | 3 |
| 9 | 0 | 9 | 7 | 5 | 3 | 1 | 10 | 8 | 6 | 4 | 2 |
| 10 | 0 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| | į | | | | | | | | | | |

| 12 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | | | |
|----|---|----|----|----|----|----|---|----|----|----|----|----|----|----|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | | | |
| 2 | 0 | 2 | 4 | 6 | 8 | 10 | 0 | 2 | 4 | 6 | 8 | 10 | | | |
| 3 | 0 | 3 | 6 | 9 | 0 | 3 | 6 | 9 | 0 | 3 | 6 | 9 | | | |
| 4 | 0 | 4 | 8 | 0 | 4 | 8 | 0 | 4 | 8 | 0 | 4 | 8 | | | |
| 5 | 0 | 5 | 10 | 3 | 8 | 1 | 6 | 11 | 4 | 9 | 2 | 7 | | | |
| 6 | 0 | 6 | 0 | 6 | 0 | 6 | 0 | 6 | 0 | 6 | 0 | 6 | | | |
| 7 | 0 | 7 | 2 | 9 | 4 | 11 | 6 | 1 | 8 | 3 | 10 | 5 | | | |
| 8 | 0 | 8 | 4 | 0 | 8 | 4 | 0 | 8 | 4 | 0 | 8 | 4 | | | |
| 9 | 0 | 9 | 6 | 3 | 0 | 9 | 6 | 3 | 0 | 9 | 6 | 3 | | | |
| 10 | 0 | 10 | 8 | 6 | 4 | 2 | 0 | 10 | 8 | 6 | 4 | 2 | | | |
| 11 | 0 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | | | |
| | 1 | | | | | | | | | | | | | | |
| 13 | 0 | 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | - |
| 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 1 | 0 | 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| 2 | 0 | 2 | 4 | 6 | 8 | | | 12 | 1 | 3 | 5 | 7 | 9 | 11 | |
| 3 | 0 | 3 | 6 | 9 | 12 | | 2 | 5 | 8 | 11 | 1 | 4 | 7 | 10 | |
| 4 | 0 | 4 | 8 | 12 | 3 | | 7 | 11 | 2 | 6 | 10 | 1 | 5 | 9 | |
| 5 | 0 | 5 | 10 | 2 | 7 | | | 4 | 9 | 1 | 6 | 11 | 3 | 8 | |
| 6 | 0 | 6 | 12 | 5 | 11 | | 4 | 10 | 3 | 9 | 2 | 8 | 1 | 7 | |
| 7 | 0 | 7 | 1 | 8 | 2 | | 9 | 3 | 10 | 4 | 11 | 5 | 12 | 6 | |
| 8 | 0 | 8 | 3 | 11 | 6 | | 1 | 9 | 4 | 12 | 7 | 2 | 10 | 5 | |
| 9 | 0 | 9 | 5 | 1 | 10 | | 6 | 2 | 11 | 7 | 3 | 12 | 8 | 4 | |
| 10 | 0 | 10 | 7 | 4 | 1 | | | 8 | 5 | 2 | 12 | 9 | 6 | 3 | |
| 11 | 0 | 11 | 9 | 7 | 5 | ; | 3 | 1 | 12 | 10 | 8 | 6 | 4 | 2 | |
| 12 | 0 | 12 | 11 | | 9 | | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |

| 14 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | |
|-----------------------------------|----------------------------|---|---|--|--|---|---|--|--|--|---|------------------------------------|--|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | |
| 2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | |
| 3 | 0 | 3 | 6 | 9 | 12 | 1 | 4 | 7 | 10 | 13 | 2 | 5 | 8 | 11 | |
| 4 | 0 | 4 | 8 | 12 | 2 | 6 | 10 | 0 | 4 | 8 | 12 | 2 | 6 | 10 | |
| 5 | 0 | 5 | 10 | 1 | 6 | 11 | 2 | 7 | 12 | 3 | 8 | 13 | 4 | 9 | |
| 6 | 0 | 6 | 12 | 4 | 10 | 2 | 8 | 0 | 6 | 12 | 4 | 10 | 2 | 8 | |
| 7 | 0 | 7 | 0 | 7 | 0 | 7 | 0 | 7 | 0 | 7 | 0 | 7 | 0 | 7 | |
| 8 | 0 | 8 | 2 | 10 | 4 | 12 | 6 | 0 | 8 | 2 | 10 | 4 | 12 | 6 | |
| 9 | 0 | 9 | 4 | 13 | 8 | 3 | 12 | 7 | 2 | 11 | 6 | 1 | 10 | 5 | |
| 10 | 0 | 10 | 6 | 2 | 12 | 8 | 4 | 0 | 10 | 6 | 2 | 12 | 8 | 4 | |
| 11 | 0 | 11 | 8 | 5 | 2 | 13 | 10 | 7 | 4 | 1 | 12 | 9 | 6 | 3 | |
| 12 | 0 | 12 | 10 | 8 | 6 | 4 | 2 | 0 | 12 | 10 | 8 | 6 | 4 | 2 | |
| 13 | 0 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |
| • | | | | | | | | | | | | | | | |
| 15 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 1 | 3 | 5 | 7 | 9 | 11 | 13 |
| 3 | 0 | 3 | 6 | 9 | 10 | 0 | | | | | | | | | |
| | | | | | 12 | 0 | 3 | 6 | 9 | 12 | 0 | 3 | 6 | 9 | 12 |
| 4 | 0 | 4 | 8 | 12 | 1 | 5 | 9 | 13 | 2 | 6 | 10 | 14 | 3 | 7 | 11 |
| 5 | 0 | 5 | 8 10 | 12 0 | 1 5 | 5 10 | 9 | 13 5 | 2 10 | 6 0 | 10 5 | 14 10 | 3 0 | 7 5 | 11 10 |
| 5 6 | $0 \\ 0$ | 5 6 | 8 10 12 | 12 0 3 | 1 5 9 | 5 10 0 | 9 0 6 | 13 5 12 | 2 10 3 | 6 0 9 | 10 5 0 | 14 10 6 | 3 0 12 | 7 5 3 | 11 10 9 |
| 5 6 7 | 0 0 0 | 5 6 7 | 8 10 12 14 | 12 0 3 6 | 1 5 9 13 | 5 10 0 5 | 9 0 6 12 | 13 5 12 4 | 2 10 3 11 | 6 0 9 3 | 10 5 0 10 | 14 10 6 2 | 3 0 12 9 | 7 5 3 1 | 11 10 9 8 |
| 5 6 7 8 | 0 0 0 0 | 5 6 7 8 | 8 10 12 14 1 | 12 0 3 6 9 | 1 5 9 13 2 | 5 10 0 5 10 | 9 0 6 12 3 | 13 5 12 4 11 | 2 10 3 11 4 | 6 0 9 3 12 | 10 5 0 10 5 | 14 10 6 2 13 | 3 0 12 9 6 | 7 5 3 1 14 | 11 10 9 8 7 |
| 5 6 7 8 9 | 0 0 0 0 | 5 6 7 8 9 | 8 10 12 14 1 3 | 12 0 3 6 9 12 | 1 5 9 13 2 6 | 5 10 0 5 10 0 | 9 0 6 12 3 9 | 13 5 12 4 11 3 | 2 10 3 11 4 12 | 6 9 3 12 6 | 10 5 0 10 5 0 | 14 10 6 2 13 9 | 3 0 12 9 6 3 | 7 5 3 1 14 12 | 11 10 9 8 7 6 |
| 5 6 7 8 9 10 | 0 0 0 0 | 5 6 7 8 9 10 | 8 10 12 14 1 3 5 | 12 0 3 6 9 12 0 | 1 5 9 13 2 | 5 10 0 5 10 0 5 | 9 0 6 12 3 9 | 13 5 12 4 11 3 10 | 2 10 3 11 4 12 5 | 6 0 9 3 12 6 0 | 10 5 0 10 5 0 10 | 14 10 6 2 13 9 5 | 3 0 12 9 6 3 0 | 7 5 3 1 14 12 10 | 11 10 9 8 7 6 5 |
| 5 6 7 8 9 10 11 | 0 0 0 0 | 5 6 7 8 9 10 11 | 8 10 12 14 1 3 5 7 | 12 0 3 6 9 12 0 3 | 1 5 9 13 2 6 10 14 | 5 10 0 5 10 0 | 9 0 6 12 3 9 0 6 | 13 5 12 4 11 3 10 2 | 2 10 3 11 4 12 5 13 | 6 9 3 12 6 0 9 | 10 5 0 10 5 0 10 5 | 14 10 6 2 13 9 5 | 3 0 12 9 6 3 0 12 | 7 5 3 1 14 12 10 8 | 11 10 9 8 7 6 5 4 |
| 5 6 7 8 9 10 | 0 0 0 0 0 | 5 6 7 8 9 10 11 12 | 8 10 12 14 1 3 5 | 12 0 3 6 9 12 0 | 1 5 9 13 2 6 10 14 3 | 5 10 0 5 10 0 5 10 | 9 0 6 12 3 9 0 6 12 | 13 5 12 4 11 3 10 | 2 10 3 11 4 12 5 | 6 0 9 3 12 6 0 9 3 | 10 5 0 10 5 0 10 | 14 10 6 2 13 9 5 | 3 0 12 9 6 3 0 | 7 5 3 1 14 12 10 | 11 10 9 8 7 6 5 4 3 |
| 5 6 7 8 9 10 11 | 0 0 0 0 0 0 | 5 6 7 8 9 10 11 | 8 10 12 14 1 3 5 7 | 12 0 3 6 9 12 0 3 | 1 5 9 13 2 6 10 14 | 5 10 0 5 10 0 5 10 | 9 0 6 12 3 9 0 6 | 13 5 12 4 11 3 10 2 | 2 10 3 11 4 12 5 13 | 6 9 3 12 6 0 9 | 10 5 0 10 5 0 10 5 | 14 10 6 2 13 9 5 | 3 0 12 9 6 3 0 12 | 7 5 3 1 14 12 10 8 | 11 10 9 8 7 6 5 4 |

| 16 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | |
|-----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | |
| 2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | |
| 3 | 0 | 3 | 6 | 9 | 12 | 15 | 2 | 5 | 8 | 11 | 14 | 1 | 4 | 7 | 10 | 13 | |
| 4 | 0 | 4 | 8 | 12 | 0 | 4 | 8 | 12 | 0 | 4 | 8 | 12 | 0 | 4 | 8 | 12 | |
| 5 | 0 | 5 | 10 | 15 | 4 | 9 | 14 | 3 | 8 | 13 | 2 | 7 | 12 | 1 | 6 | 11 | |
| 6 | 0 | 6 | 12 | 2 | 8 | 14 | 4 | 10 | 0 | 6 | 12 | 2 | 8 | 14 | 4 | 10 | |
| 7 | 0 | 7 | 14 | 5 | 12 | 3 | 10 | 1 | 8 | 15 | 6 | 13 | 4 | 11 | 2 | 9 | |
| 8 | 0 | 8 | 0 | 8 | 0 | 8 | 0 | 8 | 0 | 8 | 0 | 8 | 0 | 8 | 0 | 8 | |
| 9 | 0 | 9 | 2 | 11 | 4 | 13 | 6 | 15 | 8 | 1 | 10 | 3 | 12 | 5 | 14 | 7 | |
| 10 | 0 | 10 | 4 | 14 | 8 | 2 | 12 | 6 | 0 | 10 | 4 | 14 | 8 | 2 | 12 | 6 | |
| 11 | 0 | 11 | 6 | 1 | 12 | 7 | 2 | 13 | 8 | 3 | 14 | 9 | 4 | 15 | 10 | 5 | |
| 12 | 0 | 12 | 8 | 4 | 0 | 12 | 8 | 4 | 0 | 12 | 8 | 4 | 0 | 12 | 8 | 4 | |
| 13 | 0 | 13 | 10 | 7 | 4 | 1 | 14 | 11 | 8 | 5 | 2 | 15 | 12 | 9 | 6 | 3 | |
| 14 | 0 | 14 | 12 | 10 | 8 | 6 | 4 | 2 | 0 | 14 | 12 | 10 | 8 | 6 | 4 | 2 | |
| 15 | 0 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |
| | - | | | | | | | | | | | | | | | | |
| _17 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
| 3 | 0 | 3 | 6 | 9 | 12 | 15 | 1 | 4 | 7 | 10 | 13 | 16 | 2 | 5 | 8 | 11 | 14 |
| 4 | 0 | 4 | 8 | 12 | 16 | 3 | 7 | 11 | 15 | 2 | 6 | 10 | 14 | 1 | 5 | 9 | 13 |
| 5 | 0 | 5 | 10 | 15 | 3 | 8 | 13 | 1 | 6 | 11 | 16 | 4 | 9 | 14 | 2 | 7 | 12 |
| 6 | 0 | 6 | 12 | 1 | 7 | 13 | 2 | 8 | 14 | 3 | 9 | 15 | 4 | 10 | 16 | 5 | 11 |
| 7 | 0 | 7 | 14 | 4 | 11 | 1 | 8 | 15 | 5 | 12 | 2 | 9 | 16 | 6 | 13 | 3 | 10 |
| 8 | 0 | 8 | 16 | 7 | 15 | 6 | 14 | 5 | 13 | 4 | 12 | 3 | 11 | 2 | 10 | 1 | 9 |
| 9 | 0 | 9 | 1 | 10 | 2 | 11 | 3 | 12 | 4 | 13 | 5 | 14 | 6 | 15 | 7 | 16 | 8 |
| 10 | 0 | 10 | 3 | 13 | 6 | 16 | 9 | 2 | 12 | 5 | 15 | 8 | 1 | 11 | 4 | 14 | 7 |
| 11 | 0 | 11 | 5 | 16 | 10 | 4 | 15 | 9 | 3 | 14 | 8 | 2 | 13 | 7 | 1 | 12 | 6 |
| 12 | 0 | 12 | 7 | 2 | 14 | 9 | 4 | 16 | 11 | 6 | 1 | 13 | 8 | 3 | 15 | 10 | 5 |
| 13 | 0 | 13 | 9 | 5 | 1 | 14 | 10 | 6 | 2 | 15 | 11 | 7 | 3 | 16 | 12 | 8 | 4 |
| 14 | 0 | 14 | 11 | 8 | 5 | 2 | 16 | 13 | 10 | 7 | 4 | 1 | 15 | 12 | 9 | 6 | 3 |
| 15 | 0 | 15 | 13 | 11 | 9 | 7 | 5 | 3 | 1 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 |
| 16 | 0 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

| 18 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|----|---|----|----|----|----|----|----|----|----|---|----|----|----|----|----|----|----|----|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| 3 | 0 | 3 | 6 | 9 | 12 | 15 | 0 | 3 | 6 | 9 | 12 | 15 | 0 | 3 | 6 | 9 | 12 | 15 |
| 4 | 0 | 4 | 8 | 12 | 16 | 2 | 6 | 10 | 14 | 0 | 4 | 8 | 12 | 16 | 2 | 6 | 10 | 14 |
| 5 | 0 | 5 | 10 | 15 | 2 | 7 | 12 | 17 | 4 | 9 | 14 | 1 | 6 | 11 | 16 | 3 | 8 | 13 |
| 6 | 0 | 6 | 12 | 0 | 6 | 12 | 0 | 6 | 12 | 0 | 6 | 12 | 0 | 6 | 12 | 0 | 6 | 12 |
| 7 | 0 | 7 | 14 | 3 | 10 | 17 | 6 | 13 | 2 | 9 | 16 | 5 | 12 | 1 | 8 | 15 | 4 | 11 |
| 8 | 0 | 8 | 16 | 6 | 14 | 4 | 12 | 2 | 10 | 0 | 8 | 16 | 6 | 14 | 4 | 12 | 2 | 10 |
| 9 | 0 | 9 | 0 | 9 | 0 | 9 | 0 | 9 | 0 | 9 | 0 | 9 | 0 | 9 | 0 | 9 | 0 | 9 |
| 10 | 0 | 10 | 2 | 12 | 4 | 14 | 6 | 16 | 8 | 0 | 10 | 2 | 12 | 4 | 14 | 6 | 16 | 8 |
| 11 | 0 | 11 | 4 | 15 | 8 | 1 | 12 | 5 | 16 | 9 | 2 | 13 | 6 | 17 | 10 | 3 | 14 | 7 |
| 12 | 0 | 12 | 6 | 0 | 12 | 6 | 0 | 12 | 6 | 0 | 12 | 6 | 0 | 12 | 6 | 0 | 12 | 6 |
| 13 | 0 | 13 | 8 | 3 | 16 | 11 | 6 | 1 | 14 | 9 | 4 | 17 | 12 | 7 | 2 | 15 | 10 | 5 |
| 14 | 0 | 14 | 10 | 6 | 2 | 16 | 12 | 8 | 4 | 0 | 14 | 10 | 6 | 2 | 16 | 12 | 8 | 4 |
| 15 | 0 | 15 | 12 | 9 | 6 | 3 | 0 | 15 | 12 | 9 | 6 | 3 | 0 | 15 | 12 | 9 | 6 | 3 |
| 16 | 0 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 | 0 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 |
| 17 | 0 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| | | | | | | | | | | | | | | | | | | |

| | _ | | | | | | | | | | | | | | | | | | |
|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 19 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 | 17 |
| 3 | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 2 | 5 | 8 | 11 | 14 | 17 | 1 | 4 | 7 | 10 | 13 | 16 |
| 4 | 0 | 4 | 8 | 12 | 16 | 1 | 5 | 9 | 13 | 17 | 2 | 6 | 10 | 14 | 18 | 3 | 7 | 11 | 15 |
| 5 | 0 | 5 | 10 | 15 | 1 | 6 | 11 | 16 | 2 | 7 | 12 | 17 | 3 | 8 | 13 | 18 | 4 | 9 | 14 |
| 6 | 0 | 6 | 12 | 18 | 5 | 11 | 17 | 4 | 10 | 16 | 3 | 9 | 15 | 2 | 8 | 14 | 1 | 7 | 13 |
| 7 | 0 | 7 | 14 | 2 | 9 | 16 | 4 | 11 | 18 | 6 | 13 | 1 | 8 | 15 | 3 | 10 | 17 | 5 | 12 |
| 8 | 0 | 8 | 16 | 5 | 13 | 2 | 10 | 18 | 7 | 15 | 4 | 12 | 1 | 9 | 17 | 6 | 14 | 3 | 11 |
| 9 | 0 | 9 | 18 | 8 | 17 | 7 | 16 | 6 | 15 | 5 | 14 | 4 | 13 | 3 | 12 | 2 | 11 | 1 | 10 |
| 10 | 0 | 10 | 1 | 11 | 2 | 12 | 3 | 13 | 4 | 14 | 5 | 15 | 6 | 16 | 7 | 17 | 8 | 18 | 9 |
| 11 | 0 | 11 | 3 | 14 | 6 | 17 | 9 | 1 | 12 | 4 | 15 | 7 | 18 | 10 | 2 | 13 | 5 | 16 | 8 |
| 12 | 0 | 12 | 5 | 17 | 10 | 3 | 15 | 8 | 1 | 13 | 6 | 18 | 11 | 4 | 16 | 9 | 2 | 14 | 7 |
| 13 | 0 | 13 | 7 | 1 | 14 | 8 | 2 | 15 | 9 | 3 | 16 | 10 | 4 | 17 | 11 | 5 | 18 | 12 | 6 |
| 14 | 0 | 14 | 9 | 4 | 18 | 13 | 8 | 3 | 17 | 12 | 7 | 2 | 16 | 11 | 6 | 1 | 15 | 10 | 5 |
| 15 | 0 | 15 | 11 | 7 | 3 | 18 | 14 | 10 | 6 | 2 | 17 | 13 | 9 | 5 | 1 | 16 | 12 | 8 | 4 |
| 16 | 0 | 16 | 13 | 10 | 7 | 4 | 1 | 17 | 14 | 11 | 8 | 5 | 2 | 18 | 15 | 12 | 9 | 6 | 3 |
| 17 | 0 | 17 | 15 | 13 | 11 | 9 | 7 | 5 | 3 | 1 | 18 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 |
| 18 | 0 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| ! | • | | | | | | | | | | | | | | | | | | |

| 20 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|-------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 |
| 3 | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 1 | 4 | 7 | 10 | 13 | 16 | 19 | 2 | 5 | 8 | 11 | 14 | 17 |
| 4 | 0 | 4 | 8 | 12 | 16 | 0 | 4 | 8 | 12 | 16 | 0 | 4 | 8 | 12 | 16 | 0 | 4 | 8 | 12 | 16 |
| 5 | 0 | 5 | 10 | 15 | 0 | 5 | 10 | 15 | 0 | 5 | 10 | 15 | 0 | 5 | 10 | 15 | 0 | 5 | 10 | 15 |
| 6 | 0 | 6 | 12 | 18 | 4 | 10 | 16 | 2 | 8 | 14 | 0 | 6 | 12 | 18 | 4 | 10 | 16 | 2 | 8 | 14 |
| 7 | 0 | 7 | 14 | 1 | 8 | 15 | 2 | 9 | 16 | 3 | 10 | 17 | 4 | 11 | 18 | 5 | 12 | 19 | 6 | 13 |
| 8 | 0 | 8 | 16 | 4 | 12 | 0 | 8 | 16 | 4 | 12 | 0 | 8 | 16 | 4 | 12 | 0 | 8 | 16 | 4 | 12 |
| 9 | 0 | 9 | 18 | 7 | 16 | 5 | 14 | 3 | 12 | 1 | 10 | 19 | 8 | 17 | 6 | 15 | 4 | 13 | 2 | 11 |
| 10 | 0 | 10 | 0 | 10 | 0 | 10 | 0 | 10 | 0 | 10 | 0 | 10 | 0 | 10 | 0 | 10 | 0 | 10 | 0 | 10 |
| 11 | 0 | 11 | 2 | 13 | 4 | 15 | 6 | 17 | 8 | 19 | 10 | 1 | 12 | 3 | 14 | 5 | 16 | 7 | 18 | 9 |
| 12 | 0 | 12 | 4 | 16 | 8 | 0 | 12 | 4 | 16 | 8 | 0 | 12 | 4 | 16 | 8 | 0 | 12 | 4 | 16 | 8 |
| 13 | 0 | 13 | 6 | 19 | 12 | 5 | 18 | 11 | 4 | 17 | 10 | 3 | 16 | 9 | 2 | 15 | 8 | 1 | 14 | 7 |
| 14 | 0 | 14 | 8 | 2 | 16 | 10 | 4 | 18 | 12 | 6 | 0 | 14 | 8 | 2 | 16 | 10 | 4 | 18 | 12 | 6 |
| 15 | 0 | 15 | 10 | 5 | 0 | 15 | 10 | 5 | 0 | 15 | 10 | 5 | 0 | 15 | 10 | 5 | 0 | 15 | 10 | 5 |
| 16 | 0 | 16 | 12 | 8 | 4 | 0 | 16 | 12 | 8 | 4 | 0 | 16 | 12 | 8 | 4 | 0 | 16 | 12 | 8 | 4 |
| 17 | 0 | 17 | 14 | 11 | 8 | 5 | 2 | 19 | 16 | 13 | 10 | 7 | 4 | 1 | 18 | 15 | 12 | 9 | 6 | 3 |
| 18 | 0 | 18 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 | 0 | 18 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 |
| 19 | 0 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| • | | | | | | | | | | | | | | | | | | | | |

| 21 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|----|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 2 | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 | 17 | 19 |
| 3 | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 0 | 3 | 6 | 9 | 12 | 15 | 18 |
| 4 | 0 | 4 | 8 | 12 | 16 | 20 | 3 | 7 | 11 | 15 | 19 | 2 | 6 | 10 | 14 | 18 | 1 | 5 | 9 | 13 | 17 |
| 5 | 0 | 5 | 10 | 15 | 20 | 4 | 9 | 14 | 19 | 3 | 8 | 13 | 18 | 2 | 7 | 12 | 17 | 1 | 6 | 11 | 16 |
| 6 | 0 | 6 | 12 | 18 | 3 | 9 | 15 | 0 | 6 | 12 | 18 | 3 | 9 | 15 | 0 | 6 | 12 | 18 | 3 | 9 | 15 |
| 7 | 0 | 7 | 14 | 0 | 7 | 14 | 0 | 7 | 14 | 0 | 7 | 14 | 0 | 7 | 14 | 0 | 7 | 14 | 0 | 7 | 14 |
| 8 | 0 | 8 | 16 | 3 | 11 | 19 | 6 | 14 | 1 | 9 | 17 | 4 | 12 | 20 | 7 | 15 | 2 | 10 | 18 | 5 | 13 |
| 9 | 0 | 9 | 18 | 6 | 15 | 3 | 12 | 0 | 9 | 18 | 6 | 15 | 3 | 12 | 0 | 9 | 18 | 6 | 15 | 3 | 12 |
| 10 | 0 | 10 | 20 | 9 | 19 | 8 | 18 | 7 | 17 | 6 | 16 | 5 | 15 | 4 | 14 | 3 | 13 | 2 | 12 | 1 | 11 |
| 11 | 0 | 11 | 1 | 12 | 2 | 13 | 3 | 14 | 4 | 15 | 5 | 16 | 6 | 17 | 7 | 18 | 8 | 19 | 9 | 20 | 10 |
| 12 | 0 | 12 | 3 | 15 | 6 | 18 | 9 | 0 | 12 | 3 | 15 | 6 | 18 | 9 | 0 | 12 | 3 | 15 | 6 | 18 | 9 |
| 13 | 0 | 13 | 5 | 18 | 10 | 2 | 15 | 7 | 20 | 12 | 4 | 17 | 9 | 1 | 14 | 6 | 19 | 11 | 3 | 16 | 8 |
| 14 | 0 | 14 | 7 | 0 | 14 | 7 | 0 | 14 | 7 | 0 | 14 | 7 | 0 | 14 | 7 | 0 | 14 | 7 | 0 | 14 | 7 |
| 15 | 0 | 15 | 9 | 3 | 18 | 12 | 6 | 0 | 15 | 9 | 3 | 18 | 12 | 6 | 0 | 15 | 9 | 3 | 18 | 12 | 6 |
| 16 | 0 | 16 | 11 | 6 | 1 | 17 | 12 | 7 | 2 | 18 | 13 | 8 | 3 | 19 | 14 | 9 | 4 | 20 | 15 | 10 | 5 |
| 17 | 0 | 17 | 13 | 9 | 5 | 1 | 18 | 14 | 10 | 6 | 2 | 19 | 15 | 11 | 7 | 3 | 20 | 16 | 12 | 8 | 4 |
| 18 | 0 | 18 | 15 | 12 | 9 | 6 | 3 | 0 | 18 | 15 | 12 | 9 | 6 | 3 | 0 | 18 | 15 | 12 | 9 | 6 | 3 |
| 19 | 0 | 19 | 17 | 15 | 13 | 11 | 9 | 7 | 5 | 3 | 1 | 20 | 18 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 |
| 20 | 0 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| | | | | | | | | | | | | | | | | | | | | | |