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10000

Here is the printed out process for the happy numbers from 9001-10000:

$9^2 + 0^2 + 0^2 + 1^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
The number 9001 is happy
 $9^2 + 0^2 + 0^2 + 2^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
The number 9002 is not happy
 $9^2 + 0^2 + 0^2 + 3^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
The number 9003 is not happy
 $9^2 + 0^2 + 0^2 + 4^2 = 97$
 $9^2 + 7^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
The number 9004 is happy
 $9^2 + 0^2 + 0^2 + 5^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$

The number 9005 is not happy

$$9^2 + 0^2 + 0^2 + 6^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9006 is not happy

$$9^2 + 0^2 + 0^2 + 7^2 = 130$$

$$1^2 + 3^2 + 0^2 = 10$$

$$1^2 + 0^2 = 1$$

The number 9007 is happy

$$9^2 + 0^2 + 0^2 + 8^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

The number 9008 is not happy

$$9^2 + 0^2 + 0^2 + 9^2 = 162$$

$$1^2 + 6^2 + 2^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9009 is not happy

$$9^2 + 0^2 + 1^2 + 0^2 = 82$$

$$8^2 + 2^2 = 68$$

$$6^2 + 8^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

The number 9010 is happy

$$9^2 + 0^2 + 1^2 + 1^2 = 83$$

$$8^2 + 3^2 = 73$$

$$7^2 + 3^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9011 is not happy
 $9^2 + 0^2 + 1^2 + 2^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9012 is happy
 $9^2 + 0^2 + 1^2 + 3^2 = 91$
 $9^2 + 1^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9013 is happy
 $9^2 + 0^2 + 1^2 + 4^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9014 is not happy
 $9^2 + 0^2 + 1^2 + 5^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9015 is not happy
 $9^2 + 0^2 + 1^2 + 6^2 = 118$
 $1^2 + 1^2 + 8^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$

$4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9016 is not happy
 $9^2 + 0^2 + 1^2 + 7^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9017 is not happy
 $9^2 + 0^2 + 1^2 + 8^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9018 is not happy
 $9^2 + 0^2 + 1^2 + 9^2 = 163$
 $1^2 + 6^2 + 3^2 = 46$
 $4^2 + 6^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9019 is not happy
 $9^2 + 0^2 + 2^2 + 0^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9020 is not happy
 $9^2 + 0^2 + 2^2 + 1^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9021 is happy
 $9^2 + 0^2 + 2^2 + 2^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9022 is not happy
 $9^2 + 0^2 + 2^2 + 3^2 = 94$
 $9^2 + 4^2 = 97$
 $9^2 + 7^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9023 is happy
 $9^2 + 0^2 + 2^2 + 4^2 = 101$
 $1^2 + 0^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9024 is not happy
 $9^2 + 0^2 + 2^2 + 5^2 = 110$
 $1^2 + 1^2 + 0^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9025 is not happy
 $9^2 + 0^2 + 2^2 + 6^2 = 121$
 $1^2 + 2^2 + 1^2 = 6$
 $6^2 = 36$
 $3^2 + 6^2 = 45$
 $4^2 + 5^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$

$8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9026 is not happy
 $9^2 + 0^2 + 2^2 + 7^2 = 134$
 $1^2 + 3^2 + 4^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9027 is not happy
 $9^2 + 0^2 + 2^2 + 8^2 = 149$
 $1^2 + 4^2 + 9^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9028 is not happy
 $9^2 + 0^2 + 2^2 + 9^2 = 166$
 $1^2 + 6^2 + 6^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9029 is not happy
 $9^2 + 0^2 + 3^2 + 0^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$

$4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9030 is not happy
 $9^2 + 0^2 + 3^2 + 1^2 = 91$
 $9^2 + 1^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9031 is happy
 $9^2 + 0^2 + 3^2 + 2^2 = 94$
 $9^2 + 4^2 = 97$
 $9^2 + 7^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9032 is happy
 $9^2 + 0^2 + 3^2 + 3^2 = 99$
 $9^2 + 9^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9033 is not happy
 $9^2 + 0^2 + 3^2 + 4^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9034 is not happy
 $9^2 + 0^2 + 3^2 + 5^2 = 115$
 $1^2 + 1^2 + 5^2 = 27$
 $2^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9035 is not happy
 $9^2 + 0^2 + 3^2 + 6^2 = 126$
 $1^2 + 2^2 + 6^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9036 is not happy
 $9^2 + 0^2 + 3^2 + 7^2 = 139$
 $1^2 + 3^2 + 9^2 = 91$
 $9^2 + 1^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9037 is happy
 $9^2 + 0^2 + 3^2 + 8^2 = 154$
 $1^2 + 5^2 + 4^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9038 is not happy
 $9^2 + 0^2 + 3^2 + 9^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9039 is not happy
 $9^2 + 0^2 + 4^2 + 0^2 = 97$
 $9^2 + 7^2 = 130$

$1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9040 is happy
 $9^2 + 0^2 + 4^2 + 1^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9041 is not happy
 $9^2 + 0^2 + 4^2 + 2^2 = 101$
 $1^2 + 0^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9042 is not happy
 $9^2 + 0^2 + 4^2 + 3^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9043 is not happy
 $9^2 + 0^2 + 4^2 + 4^2 = 113$
 $1^2 + 1^2 + 3^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9044 is not happy
 $9^2 + 0^2 + 4^2 + 5^2 = 122$
 $1^2 + 2^2 + 2^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9045 is not happy
 $9^2 + 0^2 + 4^2 + 6^2 = 133$
 $1^2 + 3^2 + 3^2 = 19$
 $1^2 + 9^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9046 is happy
 $9^2 + 0^2 + 4^2 + 7^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9047 is not happy
 $9^2 + 0^2 + 4^2 + 8^2 = 161$
 $1^2 + 6^2 + 1^2 = 38$
 $3^2 + 8^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9048 is not happy
 $9^2 + 0^2 + 4^2 + 9^2 = 178$
 $1^2 + 7^2 + 8^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$

$4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9049 is not happy
 $9^2 + 0^2 + 5^2 + 0^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9050 is not happy
 $9^2 + 0^2 + 5^2 + 1^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9051 is not happy
 $9^2 + 0^2 + 5^2 + 2^2 = 110$
 $1^2 + 1^2 + 0^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9052 is not happy
 $9^2 + 0^2 + 5^2 + 3^2 = 115$
 $1^2 + 1^2 + 5^2 = 27$
 $2^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$

The number 9053 is not happy

$$9^2 + 0^2 + 5^2 + 4^2 = 122$$

$$1^2 + 2^2 + 2^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9054 is not happy

$$9^2 + 0^2 + 5^2 + 5^2 = 131$$

$$1^2 + 3^2 + 1^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9055 is not happy

$$9^2 + 0^2 + 5^2 + 6^2 = 142$$

$$1^2 + 4^2 + 2^2 = 21$$

$$2^2 + 1^2 = 5$$

$$5^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9056 is not happy

$$9^2 + 0^2 + 5^2 + 7^2 = 155$$

$$1^2 + 5^2 + 5^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$4^2 = 16$
 The number 9057 is not happy
 $9^2 + 0^2 + 5^2 + 8^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9058 is not happy
 $9^2 + 0^2 + 5^2 + 9^2 = 187$
 $1^2 + 8^2 + 7^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9059 is not happy
 $9^2 + 0^2 + 6^2 + 0^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9060 is not happy
 $9^2 + 0^2 + 6^2 + 1^2 = 118$
 $1^2 + 1^2 + 8^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$

$4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9061 is not happy
 $9^2 + 0^2 + 6^2 + 2^2 = 121$
 $1^2 + 2^2 + 1^2 = 6$
 $6^2 = 36$
 $3^2 + 6^2 = 45$
 $4^2 + 5^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9062 is not happy
 $9^2 + 0^2 + 6^2 + 3^2 = 126$
 $1^2 + 2^2 + 6^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9063 is not happy
 $9^2 + 0^2 + 6^2 + 4^2 = 133$
 $1^2 + 3^2 + 3^2 = 19$
 $1^2 + 9^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9064 is happy
 $9^2 + 0^2 + 6^2 + 5^2 = 142$
 $1^2 + 4^2 + 2^2 = 21$
 $2^2 + 1^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$

$8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9065 is not happy
 $9^2 + 0^2 + 6^2 + 6^2 = 153$
 $1^2 + 5^2 + 3^2 = 35$
 $3^2 + 5^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9066 is not happy
 $9^2 + 0^2 + 6^2 + 7^2 = 166$
 $1^2 + 6^2 + 6^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9067 is not happy
 $9^2 + 0^2 + 6^2 + 8^2 = 181$
 $1^2 + 8^2 + 1^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9068 is not happy
 $9^2 + 0^2 + 6^2 + 9^2 = 198$

$1^2 + 9^2 + 8^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9069 is not happy
 $9^2 + 0^2 + 7^2 + 0^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9070 is happy
 $9^2 + 0^2 + 7^2 + 1^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9071 is not happy
 $9^2 + 0^2 + 7^2 + 2^2 = 134$
 $1^2 + 3^2 + 4^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9072 is not happy
 $9^2 + 0^2 + 7^2 + 3^2 = 139$
 $1^2 + 3^2 + 9^2 = 91$
 $9^2 + 1^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9073 is happy
 $9^2 + 0^2 + 7^2 + 4^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$

$2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9074 is not happy
 $9^2 + 0^2 + 7^2 + 5^2 = 155$
 $1^2 + 5^2 + 5^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9075 is not happy
 $9^2 + 0^2 + 7^2 + 6^2 = 166$
 $1^2 + 6^2 + 6^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9076 is not happy
 $9^2 + 0^2 + 7^2 + 7^2 = 179$
 $1^2 + 7^2 + 9^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9077 is not happy
 $9^2 + 0^2 + 7^2 + 8^2 = 194$
 $1^2 + 9^2 + 4^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9078 is not happy
 $9^2 + 0^2 + 7^2 + 8^2 = 211$
 $2^2 + 1^2 + 1^2 = 6$
 $6^2 = 36$
 $3^2 + 6^2 = 45$
 $4^2 + 5^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9079 is not happy
 $9^2 + 0^2 + 8^2 + 0^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9080 is not happy
 $9^2 + 0^2 + 8^2 + 1^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9081 is not happy
 $9^2 + 0^2 + 8^2 + 2^2 = 149$
 $1^2 + 4^2 + 9^2 = 98$

$9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9082 is not happy
 $9^2 + 0^2 + 8^2 + 3^2 = 154$
 $1^2 + 5^2 + 4^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9083 is not happy
 $9^2 + 0^2 + 8^2 + 4^2 = 161$
 $1^2 + 6^2 + 1^2 = 38$
 $3^2 + 8^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9084 is not happy
 $9^2 + 0^2 + 8^2 + 5^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9085 is not happy
 $9^2 + 0^2 + 8^2 + 6^2 = 181$
 $1^2 + 8^2 + 1^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$

$2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9086 is not happy
 $9^2 + 0^2 + 8^2 + 7^2 = 194$
 $1^2 + 9^2 + 4^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9087 is not happy
 $9^2 + 0^2 + 8^2 + 8^2 = 209$
 $2^2 + 0^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9088 is not happy
 $9^2 + 0^2 + 8^2 + 9^2 = 226$
 $2^2 + 2^2 + 6^2 = 44$
 $4^2 + 4^2 = 32$
 $3^2 + 2^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9089 is happy
 $9^2 + 0^2 + 9^2 + 0^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9090 is not happy
 $9^2 + 0^2 + 9^2 + 1^2 = 163$
 $1^2 + 6^2 + 3^2 = 46$
 $4^2 + 6^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9091 is not happy
 $9^2 + 0^2 + 9^2 + 2^2 = 166$
 $1^2 + 6^2 + 6^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9092 is not happy
 $9^2 + 0^2 + 9^2 + 3^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9093 is not happy
 $9^2 + 0^2 + 9^2 + 4^2 = 178$
 $1^2 + 7^2 + 8^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$

$1^2 + 6^2 = 37$
 The number 9094 is not happy
 $9^2 + 0^2 + 9^2 + 5^2 = 187$
 $1^2 + 8^2 + 7^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9095 is not happy
 $9^2 + 0^2 + 9^2 + 6^2 = 198$
 $1^2 + 9^2 + 8^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9096 is not happy
 $9^2 + 0^2 + 9^2 + 7^2 = 211$
 $2^2 + 1^2 + 1^2 = 6$
 $6^2 = 36$
 $3^2 + 6^2 = 45$
 $4^2 + 5^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9097 is not happy
 $9^2 + 0^2 + 9^2 + 8^2 = 226$
 $2^2 + 2^2 + 6^2 = 44$
 $4^2 + 4^2 = 32$

$3^2 + 2^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9098 is happy
 $9^2 + 0^2 + 9^2 + 9^2 = 243$
 $2^2 + 4^2 + 3^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9099 is not happy
 $9^2 + 1^2 + 0^2 + 0^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9100 is happy
 $9^2 + 1^2 + 0^2 + 1^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9101 is not happy
 $9^2 + 1^2 + 0^2 + 2^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9102 is happy
 $9^2 + 1^2 + 0^2 + 3^2 = 91$
 $9^2 + 1^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9103 is happy
 $9^2 + 1^2 + 0^2 + 4^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9104 is not happy
 $9^2 + 1^2 + 0^2 + 5^2 = 107$

$$1^2 + 0^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9105 is not happy

$$9^2 + 1^2 + 0^2 + 6^2 = 118$$

$$1^2 + 1^2 + 8^2 = 66$$

$$6^2 + 6^2 = 72$$

$$7^2 + 2^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9106 is not happy

$$9^2 + 1^2 + 0^2 + 7^2 = 131$$

$$1^2 + 3^2 + 1^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9107 is not happy

$$9^2 + 1^2 + 0^2 + 8^2 = 146$$

$$1^2 + 4^2 + 6^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9108 is not happy
 $9^2 + 1^2 + 0^2 + 8^2 = 163$
 $1^2 + 6^2 + 3^2 = 46$
 $4^2 + 6^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9109 is not happy
 $9^2 + 1^2 + 1^2 + 0^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9110 is not happy
 $9^2 + 1^2 + 1^2 + 1^2 = 84$
 $8^2 + 4^2 = 80$
 $8^2 + 0^2 = 64$
 $6^2 + 4^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9111 is not happy
 $9^2 + 1^2 + 1^2 + 2^2 = 87$
 $8^2 + 7^2 = 113$
 $1^2 + 1^2 + 3^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9112 is not happy
 $9^2 + 1^2 + 1^2 + 3^2 = 92$
 $9^2 + 2^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9113 is not happy
 $9^2 + 1^2 + 1^2 + 4^2 = 99$
 $9^2 + 9^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9114 is not happy
 $9^2 + 1^2 + 1^2 + 5^2 = 108$
 $1^2 + 0^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9115 is not happy
 $9^2 + 1^2 + 1^2 + 6^2 = 119$
 $1^2 + 1^2 + 9^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$

$1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9116 is not happy
 $9^2 + 1^2 + 1^2 + 7^2 = 132$
 $1^2 + 3^2 + 2^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9117 is not happy
 $9^2 + 1^2 + 1^2 + 8^2 = 147$
 $1^2 + 4^2 + 7^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9118 is not happy
 $9^2 + 1^2 + 1^2 + 9^2 = 164$
 $1^2 + 6^2 + 4^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9119 is not happy
 $9^2 + 1^2 + 2^2 + 0^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$

The number 9120 is happy

$$9^2 + 1^2 + 2^2 + 1^2 = 87$$

$$8^2 + 7^2 = 113$$

$$1^2 + 1^2 + 3^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9121 is not happy

$$9^2 + 1^2 + 2^2 + 2^2 = 90$$

$$9^2 + 0^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9122 is not happy

$$9^2 + 1^2 + 2^2 + 3^2 = 95$$

$$9^2 + 5^2 = 106$$

$$1^2 + 0^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9123 is not happy

$$9^2 + 1^2 + 2^2 + 4^2 = 102$$

$$1^2 + 0^2 + 2^2 = 5$$

$$5^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9124 is not happy

$$9^2 + 1^2 + 2^2 + 5^2 = 111$$

$1^2 + 1^2 + 1^2 = 3$
 $3^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9125 is not happy
 $9^2 + 1^2 + 2^2 + 6^2 = 122$
 $1^2 + 2^2 + 2^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9126 is not happy
 $9^2 + 1^2 + 2^2 + 7^2 = 135$
 $1^2 + 3^2 + 5^2 = 35$
 $3^2 + 5^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9127 is not happy
 $9^2 + 1^2 + 2^2 + 8^2 = 150$
 $1^2 + 5^2 + 0^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$

$4^2 = 16$
 The number 9128 is not happy
 $9^2 + 1^2 + 2^2 + 9^2 = 167$
 $1^2 + 6^2 + 7^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9129 is happy
 $9^2 + 1^2 + 3^2 + 0^2 = 91$
 $9^2 + 1^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9130 is happy
 $9^2 + 1^2 + 3^2 + 1^2 = 92$
 $9^2 + 2^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9131 is not happy
 $9^2 + 1^2 + 3^2 + 2^2 = 95$
 $9^2 + 5^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9132 is not happy
 $9^2 + 1^2 + 3^2 + 3^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9133 is happy
 $9^2 + 1^2 + 3^2 + 4^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9134 is not happy
 $9^2 + 1^2 + 3^2 + 5^2 = 116$
 $1^2 + 1^2 + 6^2 = 38$

$3^2 + 8^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9135 is not happy
 $9^2 + 1^2 + 3^2 + 6^2 = 127$
 $1^2 + 2^2 + 7^2 = 54$
 $5^2 + 4^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9136 is not happy
 $9^2 + 1^2 + 3^2 + 7^2 = 140$
 $1^2 + 4^2 + 0^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9137 is not happy
 $9^2 + 1^2 + 3^2 + 8^2 = 155$
 $1^2 + 5^2 + 5^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$

$4^2 = 16$
 The number 9138 is not happy
 $9^2 + 1^2 + 3^2 + 8^2 = 172$
 $1^2 + 7^2 + 2^2 = 54$
 $5^2 + 4^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9139 is not happy
 $9^2 + 1^2 + 4^2 + 0^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9140 is not happy
 $9^2 + 1^2 + 4^2 + 1^2 = 99$
 $9^2 + 9^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9141 is not happy
 $9^2 + 1^2 + 4^2 + 2^2 = 102$
 $1^2 + 0^2 + 2^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9142 is not happy
 $9^2 + 1^2 + 4^2 + 3^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9143 is not happy
 $9^2 + 1^2 + 4^2 + 4^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9144 is not happy
 $9^2 + 1^2 + 4^2 + 5^2 = 123$
 $1^2 + 2^2 + 3^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9145 is not happy
 $9^2 + 1^2 + 4^2 + 6^2 = 134$
 $1^2 + 3^2 + 4^2 = 26$
 $2^2 + 6^2 = 40$

$4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9146 is not happy
 $9^2 + 1^2 + 4^2 + 7^2 = 147$
 $1^2 + 4^2 + 7^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9147 is not happy
 $9^2 + 1^2 + 4^2 + 8^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9148 is not happy
 $9^2 + 1^2 + 4^2 + 9^2 = 179$
 $1^2 + 7^2 + 9^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$

$2^2 + 0^2 = 4$
 The number 9149 is not happy
 $9^2 + 1^2 + 5^2 + 0^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9150 is not happy
 $9^2 + 1^2 + 5^2 + 1^2 = 108$
 $1^2 + 0^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9151 is not happy
 $9^2 + 1^2 + 5^2 + 2^2 = 111$
 $1^2 + 1^2 + 1^2 = 3$
 $3^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9152 is not happy
 $9^2 + 1^2 + 5^2 + 3^2 = 116$
 $1^2 + 1^2 + 6^2 = 38$
 $3^2 + 8^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$

$3^2 + 7^2 = 58$
 The number 9153 is not happy
 $9^2 + 1^2 + 5^2 + 4^2 = 123$
 $1^2 + 2^2 + 3^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9154 is not happy
 $9^2 + 1^2 + 5^2 + 5^2 = 132$
 $1^2 + 3^2 + 2^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9155 is not happy
 $9^2 + 1^2 + 5^2 + 6^2 = 143$
 $1^2 + 4^2 + 3^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9156 is not happy
 $9^2 + 1^2 + 5^2 + 7^2 = 156$
 $1^2 + 5^2 + 6^2 = 62$
 $6^2 + 2^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9157 is not happy
 $9^2 + 1^2 + 5^2 + 8^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9158 is not happy
 $9^2 + 1^2 + 5^2 + 9^2 = 188$
 $1^2 + 8^2 + 8^2 = 129$
 $1^2 + 2^2 + 9^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9159 is happy
 $9^2 + 1^2 + 6^2 + 0^2 = 118$
 $1^2 + 1^2 + 8^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9160 is not happy
 $9^2 + 1^2 + 6^2 + 1^2 = 119$
 $1^2 + 1^2 + 9^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9161 is not happy
 $9^2 + 1^2 + 6^2 + 2^2 = 122$

$$1^2 + 2^2 + 2^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9162 is not happy

$$9^2 + 1^2 + 6^2 + 3^2 = 127$$

$$1^2 + 2^2 + 7^2 = 54$$

$$5^2 + 4^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9163 is not happy

$$9^2 + 1^2 + 6^2 + 4^2 = 134$$

$$1^2 + 3^2 + 4^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9164 is not happy

$$9^2 + 1^2 + 6^2 + 5^2 = 143$$

$$1^2 + 4^2 + 3^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9165 is not happy

$$9^2 + 1^2 + 6^2 + 6^2 = 154$$

$$1^2 + 5^2 + 4^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

The number 9166 is not happy

$$9^2 + 1^2 + 6^2 + 7^2 = 167$$

$$1^2 + 6^2 + 7^2 = 86$$

$$8^2 + 6^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

The number 9167 is happy

$$9^2 + 1^2 + 6^2 + 8^2 = 182$$

$$1^2 + 8^2 + 2^2 = 69$$

$$6^2 + 9^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9168 is not happy

$$9^2 + 1^2 + 6^2 + 9^2 = 199$$

$$1^2 + 9^2 + 9^2 = 163$$

$$1^2 + 6^2 + 3^2 = 46$$

$$4^2 + 6^2 = 52$$

$$5^2 + 2^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9169 is not happy

$$9^2 + 1^2 + 7^2 + 0^2 = 131$$

$$1^2 + 3^2 + 1^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9170 is not happy
 $9^2 + 1^2 + 7^2 + 1^2 = 132$
 $1^2 + 3^2 + 2^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9171 is not happy
 $9^2 + 1^2 + 7^2 + 2^2 = 135$
 $1^2 + 3^2 + 5^2 = 35$
 $3^2 + 5^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9172 is not happy
 $9^2 + 1^2 + 7^2 + 3^2 = 140$
 $1^2 + 4^2 + 0^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9173 is not happy
 $9^2 + 1^2 + 7^2 + 4^2 = 147$
 $1^2 + 4^2 + 7^2 = 66$
 $6^2 + 6^2 = 72$

$7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9174 is not happy
 $9^2 + 1^2 + 7^2 + 5^2 = 156$
 $1^2 + 5^2 + 6^2 = 62$
 $6^2 + 2^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9175 is not happy
 $9^2 + 1^2 + 7^2 + 6^2 = 167$
 $1^2 + 6^2 + 7^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9176 is happy
 $9^2 + 1^2 + 7^2 + 7^2 = 180$
 $1^2 + 8^2 + 0^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9177 is not happy
 $9^2 + 1^2 + 7^2 + 8^2 = 195$
 $1^2 + 9^2 + 5^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$

$4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9178 is not happy
 $9^2 + 1^2 + 7^2 + 9^2 = 212$
 $2^2 + 1^2 + 2^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9179 is not happy
 $9^2 + 1^2 + 8^2 + 0^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9180 is not happy
 $9^2 + 1^2 + 8^2 + 1^2 = 147$
 $1^2 + 4^2 + 7^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9181 is not happy
 $9^2 + 1^2 + 8^2 + 2^2 = 150$
 $1^2 + 5^2 + 0^2 = 26$
 $2^2 + 6^2 = 40$

$4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9182 is not happy
 $9^2 + 1^2 + 8^2 + 3^2 = 155$
 $1^2 + 5^2 + 5^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9183 is not happy
 $9^2 + 1^2 + 8^2 + 4^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9184 is not happy
 $9^2 + 1^2 + 8^2 + 5^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9185 is not happy
 $9^2 + 1^2 + 8^2 + 6^2 = 182$
 $1^2 + 8^2 + 2^2 = 69$

$6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9186 is not happy
 $9^2 + 1^2 + 8^2 + 7^2 = 195$
 $1^2 + 9^2 + 5^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9187 is not happy
 $9^2 + 1^2 + 8^2 + 8^2 = 210$
 $2^2 + 1^2 + 0^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9188 is not happy
 $9^2 + 1^2 + 8^2 + 9^2 = 227$
 $2^2 + 2^2 + 7^2 = 57$
 $5^2 + 7^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$

$4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9189 is not happy
 $9^2 + 1^2 + 8^2 + 0^2 = 163$
 $1^2 + 6^2 + 3^2 = 46$
 $4^2 + 6^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9190 is not happy
 $9^2 + 1^2 + 9^2 + 1^2 = 164$
 $1^2 + 6^2 + 4^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9191 is not happy
 $9^2 + 1^2 + 9^2 + 2^2 = 167$
 $1^2 + 6^2 + 7^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9192 is happy
 $9^2 + 1^2 + 9^2 + 3^2 = 172$
 $1^2 + 7^2 + 2^2 = 54$
 $5^2 + 4^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9193 is not happy

$$9^2 + 1^2 + 9^2 + 4^2 = 179$$

$$1^2 + 7^2 + 9^2 = 131$$

$$1^2 + 3^2 + 1^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9194 is not happy

$$9^2 + 1^2 + 9^2 + 5^2 = 188$$

$$1^2 + 8^2 + 8^2 = 129$$

$$1^2 + 2^2 + 9^2 = 86$$

$$8^2 + 6^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

The number 9195 is happy

$$9^2 + 1^2 + 9^2 + 6^2 = 199$$

$$1^2 + 9^2 + 9^2 = 163$$

$$1^2 + 6^2 + 3^2 = 46$$

$$4^2 + 6^2 = 52$$

$$5^2 + 2^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9196 is not happy

$$9^2 + 1^2 + 9^2 + 7^2 = 212$$

$$2^2 + 1^2 + 2^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9197 is not happy

$$9^2 + 1^2 + 9^2 + 8^2 = 227$$

$$2^2 + 2^2 + 7^2 = 57$$

$$5^2 + 7^2 = 74$$

$$7^2 + 4^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9198 is not happy
 $9^2 + 1^2 + 9^2 + 9^2 = 244$
 $2^2 + 4^2 + 4^2 = 36$
 $3^2 + 6^2 = 45$
 $4^2 + 5^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9199 is not happy
 $9^2 + 2^2 + 0^2 + 0^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9200 is not happy
 $9^2 + 2^2 + 0^2 + 1^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9201 is happy
 $9^2 + 2^2 + 0^2 + 2^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9202 is not happy
 $9^2 + 2^2 + 0^2 + 3^2 = 94$
 $9^2 + 4^2 = 97$
 $9^2 + 7^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$

$1^2 + 0^2 = 1$
 The number 9203 is happy
 $9^2 + 2^2 + 0^2 + 4^2 = 101$
 $1^2 + 0^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9204 is not happy
 $9^2 + 2^2 + 0^2 + 5^2 = 110$
 $1^2 + 1^2 + 0^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9205 is not happy
 $9^2 + 2^2 + 0^2 + 6^2 = 121$
 $1^2 + 2^2 + 1^2 = 6$
 $6^2 = 36$
 $3^2 + 6^2 = 45$
 $4^2 + 5^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9206 is not happy
 $9^2 + 2^2 + 0^2 + 7^2 = 134$
 $1^2 + 3^2 + 4^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$

$4^2 = 16$
 The number 9207 is not happy
 $9^2 + 2^2 + 0^2 + 8^2 = 149$
 $1^2 + 4^2 + 9^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9208 is not happy
 $9^2 + 2^2 + 0^2 + 9^2 = 166$
 $1^2 + 6^2 + 6^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9209 is not happy
 $9^2 + 2^2 + 1^2 + 0^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9210 is happy
 $9^2 + 2^2 + 1^2 + 1^2 = 87$
 $8^2 + 7^2 = 113$
 $1^2 + 1^2 + 3^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9211 is not happy
 $9^2 + 2^2 + 1^2 + 2^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$

$1^2 + 6^2 = 37$
 The number 9212 is not happy
 $9^2 + 2^2 + 1^2 + 3^2 = 95$
 $9^2 + 5^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9213 is not happy
 $9^2 + 2^2 + 1^2 + 4^2 = 102$
 $1^2 + 0^2 + 2^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9214 is not happy
 $9^2 + 2^2 + 1^2 + 5^2 = 111$
 $1^2 + 1^2 + 1^2 = 3$
 $3^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9215 is not happy
 $9^2 + 2^2 + 1^2 + 6^2 = 122$
 $1^2 + 2^2 + 2^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$

$4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9216 is not happy
 $9^2 + 2^2 + 1^2 + 7^2 = 135$
 $1^2 + 3^2 + 5^2 = 35$
 $3^2 + 5^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9217 is not happy
 $9^2 + 2^2 + 1^2 + 8^2 = 150$
 $1^2 + 5^2 + 0^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9218 is not happy
 $9^2 + 2^2 + 1^2 + 9^2 = 167$
 $1^2 + 6^2 + 7^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9219 is happy
 $9^2 + 2^2 + 2^2 + 0^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9220 is not happy
 $9^2 + 2^2 + 2^2 + 1^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9221 is not happy
 $9^2 + 2^2 + 2^2 + 2^2 = 93$
 $9^2 + 3^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9222 is not happy
 $9^2 + 2^2 + 2^2 + 3^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9223 is not happy
 $9^2 + 2^2 + 2^2 + 4^2 = 105$
 $1^2 + 0^2 + 5^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9224 is not happy
 $9^2 + 2^2 + 2^2 + 5^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$

The number 9225 is not happy

$$9^2 + 2^2 + 2^2 + 6^2 = 125$$

$$1^2 + 2^2 + 5^2 = 30$$

$$3^2 + 0^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9226 is not happy

$$9^2 + 2^2 + 2^2 + 7^2 = 138$$

$$1^2 + 3^2 + 8^2 = 74$$

$$7^2 + 4^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9227 is not happy

$$9^2 + 2^2 + 2^2 + 8^2 = 153$$

$$1^2 + 5^2 + 3^2 = 35$$

$$3^2 + 5^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9228 is not happy

$$9^2 + 2^2 + 2^2 + 9^2 = 170$$

$$1^2 + 7^2 + 0^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9229 is not happy
 $9^2 + 2^2 + 3^2 + 0^2 = 94$
 $9^2 + 4^2 = 97$
 $9^2 + 7^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9230 is happy
 $9^2 + 2^2 + 3^2 + 1^2 = 95$
 $9^2 + 5^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9231 is not happy
 $9^2 + 2^2 + 3^2 + 2^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9232 is not happy
 $9^2 + 2^2 + 3^2 + 3^2 = 103$
 $1^2 + 0^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9233 is happy
 $9^2 + 2^2 + 3^2 + 4^2 = 110$
 $1^2 + 1^2 + 0^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9234 is not happy
 $9^2 + 2^2 + 3^2 + 5^2 = 119$
 $1^2 + 1^2 + 9^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9235 is not happy
 $9^2 + 2^2 + 3^2 + 6^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9236 is happy
 $9^2 + 2^2 + 3^2 + 7^2 = 143$
 $1^2 + 4^2 + 3^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9237 is not happy
 $9^2 + 2^2 + 3^2 + 8^2 = 158$
 $1^2 + 5^2 + 8^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9238 is not happy
 $9^2 + 2^2 + 3^2 + 9^2 = 175$
 $1^2 + 7^2 + 5^2 = 75$
 $7^2 + 5^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9239 is not happy
 $9^2 + 2^2 + 4^2 + 0^2 = 101$
 $1^2 + 0^2 + 1^2 = 2$
 $2^2 = 4$

$4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9240 is not happy
 $9^2 + 2^2 + 4^2 + 1^2 = 102$
 $1^2 + 0^2 + 2^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9241 is not happy
 $9^2 + 2^2 + 4^2 + 2^2 = 105$
 $1^2 + 0^2 + 5^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9242 is not happy
 $9^2 + 2^2 + 4^2 + 3^2 = 110$
 $1^2 + 1^2 + 0^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9243 is not happy
 $9^2 + 2^2 + 4^2 + 4^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$

$8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9244 is not happy
 $9^2 + 2^2 + 4^2 + 5^2 = 126$
 $1^2 + 2^2 + 6^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9245 is not happy
 $9^2 + 2^2 + 4^2 + 6^2 = 137$
 $1^2 + 3^2 + 7^2 = 59$
 $5^2 + 9^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9246 is not happy
 $9^2 + 2^2 + 4^2 + 7^2 = 150$
 $1^2 + 5^2 + 0^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9247 is not happy
 $9^2 + 2^2 + 4^2 + 8^2 = 165$
 $1^2 + 6^2 + 5^2 = 62$
 $6^2 + 2^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9248 is not happy

$$9^2 + 2^2 + 4^2 + 9^2 = 182$$

$$1^2 + 8^2 + 2^2 = 69$$

$$6^2 + 9^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9249 is not happy

$$9^2 + 2^2 + 5^2 + 0^2 = 110$$

$$1^2 + 1^2 + 0^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9250 is not happy

$$9^2 + 2^2 + 5^2 + 1^2 = 111$$

$$1^2 + 1^2 + 1^2 = 3$$

$$3^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9251 is not happy

$$9^2 + 2^2 + 5^2 + 2^2 = 114$$

$$1^2 + 1^2 + 4^2 = 18$$

$$1^2 + 8^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9252 is not happy
 $9^2 + 2^2 + 5^2 + 3^2 = 119$
 $1^2 + 1^2 + 9^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9253 is not happy
 $9^2 + 2^2 + 5^2 + 4^2 = 126$
 $1^2 + 2^2 + 6^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9254 is not happy
 $9^2 + 2^2 + 5^2 + 5^2 = 135$
 $1^2 + 3^2 + 5^2 = 35$
 $3^2 + 5^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9255 is not happy
 $9^2 + 2^2 + 5^2 + 6^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$

$2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9256 is not happy
 $9^2 + 2^2 + 5^2 + 7^2 = 159$
 $1^2 + 5^2 + 9^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9257 is not happy
 $9^2 + 2^2 + 5^2 + 8^2 = 174$
 $1^2 + 7^2 + 4^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9258 is not happy
 $9^2 + 2^2 + 5^2 + 9^2 = 191$
 $1^2 + 9^2 + 1^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$

The number 9259 is not happy

$$9^2 + 2^2 + 6^2 + 0^2 = 121$$

$$1^2 + 2^2 + 1^2 = 6$$

$$6^2 = 36$$

$$3^2 + 6^2 = 45$$

$$4^2 + 5^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9260 is not happy

$$9^2 + 2^2 + 6^2 + 1^2 = 122$$

$$1^2 + 2^2 + 2^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9261 is not happy

$$9^2 + 2^2 + 6^2 + 2^2 = 125$$

$$1^2 + 2^2 + 5^2 = 30$$

$$3^2 + 0^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9262 is not happy

$$9^2 + 2^2 + 6^2 + 3^2 = 130$$

$$1^2 + 3^2 + 0^2 = 10$$

$$1^2 + 0^2 = 1$$

The number 9263 is happy

$$9^2 + 2^2 + 6^2 + 4^2 = 137$$

$$1^2 + 3^2 + 7^2 = 59$$

$$5^2 + 9^2 = 106$$

$$1^2 + 0^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9264 is not happy

$$9^2 + 2^2 + 6^2 + 5^2 = 146$$

$$1^2 + 4^2 + 6^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9265 is not happy

$$9^2 + 2^2 + 6^2 + 6^2 = 157$$

$$1^2 + 5^2 + 7^2 = 75$$

$$7^2 + 5^2 = 74$$

$$7^2 + 4^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9266 is not happy

$$9^2 + 2^2 + 6^2 + 7^2 = 170$$

$$1^2 + 7^2 + 0^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9267 is not happy

$$9^2 + 2^2 + 6^2 + 8^2 = 185$$

$$1^2 + 8^2 + 5^2 = 90$$

$$9^2 + 0^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9268 is not happy

$$9^2 + 2^2 + 6^2 + 9^2 = 202$$

$$2^2 + 0^2 + 2^2 = 8$$

$$8^2 = 64$$

$$6^2 + 4^2 = 52$$

$$5^2 + 2^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9269 is not happy

$$9^2 + 2^2 + 7^2 + 0^2 = 134$$

$$1^2 + 3^2 + 4^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9270 is not happy

$$9^2 + 2^2 + 7^2 + 1^2 = 135$$

$$1^2 + 3^2 + 5^2 = 35$$

$$3^2 + 5^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9271 is not happy
 $9^2 + 2^2 + 7^2 + 2^2 = 138$
 $1^2 + 3^2 + 8^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9272 is not happy
 $9^2 + 2^2 + 7^2 + 3^2 = 143$
 $1^2 + 4^2 + 3^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9273 is not happy
 $9^2 + 2^2 + 7^2 + 4^2 = 150$
 $1^2 + 5^2 + 0^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9274 is not happy
 $9^2 + 2^2 + 7^2 + 5^2 = 159$
 $1^2 + 5^2 + 9^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9275 is not happy
 $9^2 + 2^2 + 7^2 + 6^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9276 is not happy
 $9^2 + 2^2 + 7^2 + 7^2 = 183$
 $1^2 + 8^2 + 3^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9277 is not happy
 $9^2 + 2^2 + 7^2 + 8^2 = 198$
 $1^2 + 9^2 + 8^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9278 is not happy
 $9^2 + 2^2 + 7^2 + 9^2 = 215$
 $2^2 + 1^2 + 5^2 = 30$
 $3^2 + 0^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$

$5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9279 is not happy
 $9^2 + 2^2 + 8^2 + 0^2 = 149$
 $1^2 + 4^2 + 9^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9280 is not happy
 $9^2 + 2^2 + 8^2 + 1^2 = 150$
 $1^2 + 5^2 + 0^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9281 is not happy
 $9^2 + 2^2 + 8^2 + 2^2 = 153$
 $1^2 + 5^2 + 3^2 = 35$
 $3^2 + 5^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9282 is not happy
 $9^2 + 2^2 + 8^2 + 3^2 = 158$
 $1^2 + 5^2 + 8^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$

$5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9283 is not happy
 $9^2 + 2^2 + 8^2 + 4^2 = 165$
 $1^2 + 6^2 + 5^2 = 62$
 $6^2 + 2^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9284 is not happy
 $9^2 + 2^2 + 8^2 + 5^2 = 174$
 $1^2 + 7^2 + 4^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9285 is not happy
 $9^2 + 2^2 + 8^2 + 6^2 = 185$
 $1^2 + 8^2 + 5^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9286 is not happy
 $9^2 + 2^2 + 8^2 + 7^2 = 198$
 $1^2 + 9^2 + 8^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$

$5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9287 is not happy
 $9^2 + 2^2 + 8^2 + 8^2 = 213$
 $2^2 + 1^2 + 3^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9288 is not happy
 $9^2 + 2^2 + 8^2 + 9^2 = 230$
 $2^2 + 3^2 + 0^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9289 is happy
 $9^2 + 2^2 + 9^2 + 0^2 = 166$
 $1^2 + 6^2 + 6^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9290 is not happy
 $9^2 + 2^2 + 9^2 + 1^2 = 167$
 $1^2 + 6^2 + 7^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9291 is happy
 $9^2 + 2^2 + 9^2 + 2^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$

$2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9292 is not happy
 $9^2 + 2^2 + 9^2 + 3^2 = 175$
 $1^2 + 7^2 + 5^2 = 75$
 $7^2 + 5^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9293 is not happy
 $9^2 + 2^2 + 9^2 + 4^2 = 182$
 $1^2 + 8^2 + 2^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9294 is not happy
 $9^2 + 2^2 + 9^2 + 5^2 = 191$
 $1^2 + 9^2 + 1^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9295 is not happy
 $9^2 + 2^2 + 9^2 + 6^2 = 202$
 $2^2 + 0^2 + 2^2 = 8$

$8^2 = 64$
 $6^2 + 4^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9296 is not happy
 $9^2 + 2^2 + 9^2 + 7^2 = 215$
 $2^2 + 1^2 + 5^2 = 30$
 $3^2 + 0^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9297 is not happy
 $9^2 + 2^2 + 9^2 + 8^2 = 230$
 $2^2 + 3^2 + 0^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9298 is happy
 $9^2 + 2^2 + 9^2 + 9^2 = 247$
 $2^2 + 4^2 + 7^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9299 is not happy
 $9^2 + 3^2 + 0^2 + 0^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$

$5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9300 is not happy
 $9^2 + 3^2 + 0^2 + 1^2 = 91$
 $9^2 + 1^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9301 is happy
 $9^2 + 3^2 + 0^2 + 2^2 = 94$
 $9^2 + 4^2 = 97$
 $9^2 + 7^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9302 is happy
 $9^2 + 3^2 + 0^2 + 3^2 = 99$
 $9^2 + 9^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9303 is not happy
 $9^2 + 3^2 + 0^2 + 4^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9304 is not happy
 $9^2 + 3^2 + 0^2 + 5^2 = 115$
 $1^2 + 1^2 + 5^2 = 27$
 $2^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$

$8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9305 is not happy
 $9^2 + 3^2 + 0^2 + 6^2 = 126$
 $1^2 + 2^2 + 6^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9306 is not happy
 $9^2 + 3^2 + 0^2 + 7^2 = 139$
 $1^2 + 3^2 + 9^2 = 91$
 $9^2 + 1^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9307 is happy
 $9^2 + 3^2 + 0^2 + 8^2 = 154$
 $1^2 + 5^2 + 4^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9308 is not happy
 $9^2 + 3^2 + 0^2 + 9^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$

The number 9309 is not happy

$$9^2 + 3^2 + 1^2 + 0^2 = 91$$

$$9^2 + 1^2 = 82$$

$$8^2 + 2^2 = 68$$

$$6^2 + 8^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

The number 9310 is happy

$$9^2 + 3^2 + 1^2 + 1^2 = 92$$

$$9^2 + 2^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9311 is not happy

$$9^2 + 3^2 + 1^2 + 2^2 = 95$$

$$9^2 + 5^2 = 106$$

$$1^2 + 0^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9312 is not happy

$$9^2 + 3^2 + 1^2 + 3^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

The number 9313 is happy

$$9^2 + 3^2 + 1^2 + 4^2 = 107$$

$$1^2 + 0^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9314 is not happy

$$9^2 + 3^2 + 1^2 + 5^2 = 116$$

$$1^2 + 1^2 + 6^2 = 38$$

$$3^2 + 8^2 = 73$$

$$7^2 + 3^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9315 is not happy
 $9^2 + 3^2 + 1^2 + 6^2 = 127$
 $1^2 + 2^2 + 7^2 = 54$
 $5^2 + 4^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9316 is not happy
 $9^2 + 3^2 + 1^2 + 7^2 = 140$
 $1^2 + 4^2 + 0^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9317 is not happy
 $9^2 + 3^2 + 1^2 + 8^2 = 155$
 $1^2 + 5^2 + 5^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9318 is not happy
 $9^2 + 3^2 + 1^2 + 9^2 = 172$
 $1^2 + 7^2 + 2^2 = 54$
 $5^2 + 4^2 = 41$
 $4^2 + 1^2 = 17$

$1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9319 is not happy
 $9^2 + 3^2 + 2^2 + 0^2 = 94$
 $9^2 + 4^2 = 97$
 $9^2 + 7^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9320 is happy
 $9^2 + 3^2 + 2^2 + 1^2 = 95$
 $9^2 + 5^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9321 is not happy
 $9^2 + 3^2 + 2^2 + 2^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9322 is not happy
 $9^2 + 3^2 + 2^2 + 3^2 = 103$
 $1^2 + 0^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9323 is happy
 $9^2 + 3^2 + 2^2 + 4^2 = 110$
 $1^2 + 1^2 + 0^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$

$4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
The number 9324 is not happy
 $9^2 + 3^2 + 2^2 + 5^2 = 119$
 $1^2 + 1^2 + 9^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
The number 9325 is not happy
 $9^2 + 3^2 + 2^2 + 6^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
The number 9326 is happy
 $9^2 + 3^2 + 2^2 + 7^2 = 143$
 $1^2 + 4^2 + 3^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
The number 9327 is not happy
 $9^2 + 3^2 + 2^2 + 8^2 = 158$
 $1^2 + 5^2 + 8^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
The number 9328 is not happy
 $9^2 + 3^2 + 2^2 + 9^2 = 175$
 $1^2 + 7^2 + 5^2 = 75$
 $7^2 + 5^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9329 is not happy
 $9^2 + 3^2 + 3^2 + 0^2 = 99$
 $9^2 + 9^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9330 is not happy
 $9^2 + 3^2 + 3^2 + 1^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9331 is happy
 $9^2 + 3^2 + 3^2 + 2^2 = 103$
 $1^2 + 0^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9332 is happy
 $9^2 + 3^2 + 3^2 + 3^2 = 108$
 $1^2 + 0^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9333 is not happy
 $9^2 + 3^2 + 3^2 + 4^2 = 115$
 $1^2 + 1^2 + 5^2 = 27$
 $2^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$

$1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9334 is not happy
 $9^2 + 3^2 + 3^2 + 5^2 = 124$
 $1^2 + 2^2 + 4^2 = 21$
 $2^2 + 1^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9335 is not happy
 $9^2 + 3^2 + 3^2 + 6^2 = 135$
 $1^2 + 3^2 + 5^2 = 35$
 $3^2 + 5^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9336 is not happy
 $9^2 + 3^2 + 3^2 + 7^2 = 148$
 $1^2 + 4^2 + 8^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9337 is not happy
 $9^2 + 3^2 + 3^2 + 8^2 = 163$
 $1^2 + 6^2 + 3^2 = 46$
 $4^2 + 6^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9338 is not happy
 $9^2 + 3^2 + 3^2 + 9^2 = 180$
 $1^2 + 8^2 + 0^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9339 is not happy
 $9^2 + 3^2 + 4^2 + 0^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9340 is not happy
 $9^2 + 3^2 + 4^2 + 1^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9341 is not happy
 $9^2 + 3^2 + 4^2 + 2^2 = 110$
 $1^2 + 1^2 + 0^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$

$2^2 + 0^2 = 4$
 The number 9342 is not happy
 $9^2 + 3^2 + 4^2 + 3^2 = 115$
 $1^2 + 1^2 + 5^2 = 27$
 $2^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9343 is not happy
 $9^2 + 3^2 + 4^2 + 4^2 = 122$
 $1^2 + 2^2 + 2^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9344 is not happy
 $9^2 + 3^2 + 4^2 + 5^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9345 is not happy
 $9^2 + 3^2 + 4^2 + 6^2 = 142$
 $1^2 + 4^2 + 2^2 = 21$
 $2^2 + 1^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9346 is not happy
 $9^2 + 3^2 + 4^2 + 7^2 = 155$
 $1^2 + 5^2 + 5^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9347 is not happy
 $9^2 + 3^2 + 4^2 + 8^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9348 is not happy
 $9^2 + 3^2 + 4^2 + 9^2 = 187$
 $1^2 + 8^2 + 7^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9349 is not happy
 $9^2 + 3^2 + 5^2 + 0^2 = 115$
 $1^2 + 1^2 + 5^2 = 27$
 $2^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$

$8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9350 is not happy
 $9^2 + 3^2 + 5^2 + 1^2 = 116$
 $1^2 + 1^2 + 6^2 = 38$
 $3^2 + 8^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9351 is not happy
 $9^2 + 3^2 + 5^2 + 2^2 = 119$
 $1^2 + 1^2 + 9^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9352 is not happy
 $9^2 + 3^2 + 5^2 + 3^2 = 124$
 $1^2 + 2^2 + 4^2 = 21$
 $2^2 + 1^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9353 is not happy
 $9^2 + 3^2 + 5^2 + 4^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$

$1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9354 is not happy
 $9^2 + 3^2 + 5^2 + 5^2 = 140$
 $1^2 + 4^2 + 0^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9355 is not happy
 $9^2 + 3^2 + 5^2 + 6^2 = 151$
 $1^2 + 5^2 + 1^2 = 27$
 $2^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9356 is not happy
 $9^2 + 3^2 + 5^2 + 7^2 = 164$
 $1^2 + 6^2 + 4^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9357 is not happy

$$9^2 + 3^2 + 5^2 + 8^2 = 179$$

$$1^2 + 7^2 + 9^2 = 131$$

$$1^2 + 3^2 + 1^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9358 is not happy

$$9^2 + 3^2 + 5^2 + 9^2 = 196$$

$$1^2 + 9^2 + 6^2 = 118$$

$$1^2 + 1^2 + 8^2 = 66$$

$$6^2 + 6^2 = 72$$

$$7^2 + 2^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9359 is not happy

$$9^2 + 3^2 + 6^2 + 0^2 = 126$$

$$1^2 + 2^2 + 6^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9360 is not happy

$$9^2 + 3^2 + 6^2 + 1^2 = 127$$

$$1^2 + 2^2 + 7^2 = 54$$

$$5^2 + 4^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9361 is not happy
 $9^2 + 3^2 + 6^2 + 2^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9362 is happy
 $9^2 + 3^2 + 6^2 + 3^2 = 135$
 $1^2 + 3^2 + 5^2 = 35$
 $3^2 + 5^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9363 is not happy
 $9^2 + 3^2 + 6^2 + 4^2 = 142$
 $1^2 + 4^2 + 2^2 = 21$
 $2^2 + 1^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9364 is not happy
 $9^2 + 3^2 + 6^2 + 5^2 = 151$
 $1^2 + 5^2 + 1^2 = 27$
 $2^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$

$4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9365 is not happy
 $9^2 + 3^2 + 6^2 + 6^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9366 is not happy
 $9^2 + 3^2 + 6^2 + 7^2 = 175$
 $1^2 + 7^2 + 5^2 = 75$
 $7^2 + 5^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9367 is not happy
 $9^2 + 3^2 + 6^2 + 8^2 = 190$
 $1^2 + 9^2 + 0^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9368 is happy
 $9^2 + 3^2 + 6^2 + 9^2 = 207$
 $2^2 + 0^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$

$1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9369 is not happy
 $9^2 + 3^2 + 7^2 + 0^2 = 139$
 $1^2 + 3^2 + 9^2 = 91$
 $9^2 + 1^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9370 is happy
 $9^2 + 3^2 + 7^2 + 1^2 = 140$
 $1^2 + 4^2 + 0^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9371 is not happy
 $9^2 + 3^2 + 7^2 + 2^2 = 143$
 $1^2 + 4^2 + 3^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9372 is not happy
 $9^2 + 3^2 + 7^2 + 3^2 = 148$
 $1^2 + 4^2 + 8^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9373 is not happy
 $9^2 + 3^2 + 7^2 + 4^2 = 155$
 $1^2 + 5^2 + 5^2 = 51$
 $5^2 + 1^2 = 26$

$2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9374 is not happy
 $9^2 + 3^2 + 7^2 + 5^2 = 164$
 $1^2 + 6^2 + 4^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9375 is not happy
 $9^2 + 3^2 + 7^2 + 6^2 = 175$
 $1^2 + 7^2 + 5^2 = 75$
 $7^2 + 5^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9376 is not happy
 $9^2 + 3^2 + 7^2 + 7^2 = 188$
 $1^2 + 8^2 + 8^2 = 129$
 $1^2 + 2^2 + 9^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9377 is happy
 $9^2 + 3^2 + 7^2 + 8^2 = 203$
 $2^2 + 0^2 + 3^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9378 is happy
 $9^2 + 3^2 + 7^2 + 9^2 = 220$
 $2^2 + 2^2 + 0^2 = 8$
 $8^2 = 64$
 $6^2 + 4^2 = 52$

$5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9379 is not happy
 $9^2 + 3^2 + 8^2 + 0^2 = 154$
 $1^2 + 5^2 + 4^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9380 is not happy
 $9^2 + 3^2 + 8^2 + 1^2 = 155$
 $1^2 + 5^2 + 5^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9381 is not happy
 $9^2 + 3^2 + 8^2 + 2^2 = 158$
 $1^2 + 5^2 + 8^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9382 is not happy
 $9^2 + 3^2 + 8^2 + 3^2 = 163$
 $1^2 + 6^2 + 3^2 = 46$
 $4^2 + 6^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$

$8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9383 is not happy
 $9^2 + 3^2 + 8^2 + 4^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9384 is not happy
 $9^2 + 3^2 + 8^2 + 5^2 = 179$
 $1^2 + 7^2 + 9^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9385 is not happy
 $9^2 + 3^2 + 8^2 + 6^2 = 190$
 $1^2 + 9^2 + 0^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9386 is happy
 $9^2 + 3^2 + 8^2 + 7^2 = 203$
 $2^2 + 0^2 + 3^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9387 is happy
 $9^2 + 3^2 + 8^2 + 8^2 = 218$
 $2^2 + 1^2 + 8^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$

$1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9388 is not happy
 $9^2 + 3^2 + 8^2 + 9^2 = 235$
 $2^2 + 3^2 + 5^2 = 38$
 $3^2 + 8^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9389 is not happy
 $9^2 + 3^2 + 9^2 + 0^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9390 is not happy
 $9^2 + 3^2 + 9^2 + 1^2 = 172$
 $1^2 + 7^2 + 2^2 = 54$
 $5^2 + 4^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9391 is not happy
 $9^2 + 3^2 + 9^2 + 2^2 = 175$
 $1^2 + 7^2 + 5^2 = 75$
 $7^2 + 5^2 = 74$

$7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9392 is not happy
 $9^2 + 3^2 + 9^2 + 3^2 = 180$
 $1^2 + 8^2 + 0^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9393 is not happy
 $9^2 + 3^2 + 9^2 + 4^2 = 187$
 $1^2 + 8^2 + 7^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9394 is not happy
 $9^2 + 3^2 + 9^2 + 5^2 = 196$
 $1^2 + 9^2 + 6^2 = 118$
 $1^2 + 1^2 + 8^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$

$5^2 + 8^2 = 89$
 The number 9395 is not happy
 $9^2 + 3^2 + 9^2 + 6^2 = 207$
 $2^2 + 0^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9396 is not happy
 $9^2 + 3^2 + 9^2 + 7^2 = 220$
 $2^2 + 2^2 + 0^2 = 8$
 $8^2 = 64$
 $6^2 + 4^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9397 is not happy
 $9^2 + 3^2 + 9^2 + 8^2 = 235$
 $2^2 + 3^2 + 5^2 = 38$
 $3^2 + 8^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9398 is not happy
 $9^2 + 3^2 + 9^2 + 9^2 = 252$
 $2^2 + 5^2 + 2^2 = 33$
 $3^2 + 3^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$

$4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9399 is not happy
 $9^2 + 4^2 + 0^2 + 0^2 = 97$
 $9^2 + 7^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9400 is happy
 $9^2 + 4^2 + 0^2 + 1^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9401 is not happy
 $9^2 + 4^2 + 0^2 + 2^2 = 101$
 $1^2 + 0^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9402 is not happy
 $9^2 + 4^2 + 0^2 + 3^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9403 is not happy
 $9^2 + 4^2 + 0^2 + 4^2 = 113$
 $1^2 + 1^2 + 3^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$

The number 9404 is not happy

$$9^2 + 4^2 + 0^2 + 5^2 = 122$$

$$1^2 + 2^2 + 2^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9405 is not happy

$$9^2 + 4^2 + 0^2 + 6^2 = 133$$

$$1^2 + 3^2 + 3^2 = 19$$

$$1^2 + 9^2 = 82$$

$$8^2 + 2^2 = 68$$

$$6^2 + 8^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

The number 9406 is happy

$$9^2 + 4^2 + 0^2 + 7^2 = 146$$

$$1^2 + 4^2 + 6^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9407 is not happy

$$9^2 + 4^2 + 0^2 + 8^2 = 161$$

$$1^2 + 6^2 + 1^2 = 38$$

$$3^2 + 8^2 = 73$$

$$7^2 + 3^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

The number 9408 is not happy

$$9^2 + 4^2 + 0^2 + 9^2 = 178$$

$$1^2 + 7^2 + 8^2 = 114$$

$$1^2 + 1^2 + 4^2 = 18$$

$$1^2 + 8^2 = 65$$

$$6^2 + 5^2 = 61$$

$6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9409 is not happy
 $9^2 + 4^2 + 1^2 + 0^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9410 is not happy
 $9^2 + 4^2 + 1^2 + 1^2 = 99$
 $9^2 + 9^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9411 is not happy
 $9^2 + 4^2 + 1^2 + 2^2 = 102$
 $1^2 + 0^2 + 2^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9412 is not happy
 $9^2 + 4^2 + 1^2 + 3^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$

$5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9413 is not happy
 $9^2 + 4^2 + 1^2 + 4^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9414 is not happy
 $9^2 + 4^2 + 1^2 + 5^2 = 123$
 $1^2 + 2^2 + 3^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9415 is not happy
 $9^2 + 4^2 + 1^2 + 6^2 = 134$
 $1^2 + 3^2 + 4^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9416 is not happy

$$9^2 + 4^2 + 1^2 + 7^2 = 147$$

$$1^2 + 4^2 + 7^2 = 66$$

$$6^2 + 6^2 = 72$$

$$7^2 + 2^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9417 is not happy

$$9^2 + 4^2 + 1^2 + 8^2 = 162$$

$$1^2 + 6^2 + 2^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9418 is not happy

$$9^2 + 4^2 + 1^2 + 9^2 = 179$$

$$1^2 + 7^2 + 9^2 = 131$$

$$1^2 + 3^2 + 1^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9419 is not happy

$$9^2 + 4^2 + 2^2 + 0^2 = 101$$

$$1^2 + 0^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9420 is not happy
 $9^2 + 4^2 + 2^2 + 1^2 = 102$
 $1^2 + 0^2 + 2^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9421 is not happy
 $9^2 + 4^2 + 2^2 + 2^2 = 105$
 $1^2 + 0^2 + 5^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9422 is not happy
 $9^2 + 4^2 + 2^2 + 3^2 = 110$
 $1^2 + 1^2 + 0^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9423 is not happy
 $9^2 + 4^2 + 2^2 + 4^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$

The number 9424 is not happy

$$9^2 + 4^2 + 2^2 + 5^2 = 126$$

$$1^2 + 2^2 + 6^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9425 is not happy

$$9^2 + 4^2 + 2^2 + 6^2 = 137$$

$$1^2 + 3^2 + 7^2 = 59$$

$$5^2 + 9^2 = 106$$

$$1^2 + 0^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9426 is not happy

$$9^2 + 4^2 + 2^2 + 7^2 = 150$$

$$1^2 + 5^2 + 0^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9427 is not happy

$$9^2 + 4^2 + 2^2 + 8^2 = 165$$

$$1^2 + 6^2 + 5^2 = 62$$

$$6^2 + 2^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9428 is not happy

$$9^2 + 4^2 + 2^2 + 9^2 = 182$$

$$1^2 + 8^2 + 2^2 = 69$$

$$6^2 + 9^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9429 is not happy

$$9^2 + 4^2 + 3^2 + 0^2 = 106$$

$$1^2 + 0^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9430 is not happy

$$9^2 + 4^2 + 3^2 + 1^2 = 107$$

$$1^2 + 0^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9431 is not happy

$$9^2 + 4^2 + 3^2 + 2^2 = 110$$

$$1^2 + 1^2 + 0^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9432 is not happy

$$9^2 + 4^2 + 3^2 + 3^2 = 115$$

$$1^2 + 1^2 + 5^2 = 27$$

$$2^2 + 7^2 = 53$$

$5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9433 is not happy
 $9^2 + 4^2 + 3^2 + 4^2 = 122$
 $1^2 + 2^2 + 2^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9434 is not happy
 $9^2 + 4^2 + 3^2 + 5^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9435 is not happy
 $9^2 + 4^2 + 3^2 + 6^2 = 142$
 $1^2 + 4^2 + 2^2 = 21$
 $2^2 + 1^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$

The number 9436 is not happy

$$9^2 + 4^2 + 3^2 + 7^2 = 155$$

$$1^2 + 5^2 + 5^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9437 is not happy

$$9^2 + 4^2 + 3^2 + 8^2 = 170$$

$$1^2 + 7^2 + 0^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9438 is not happy

$$9^2 + 4^2 + 3^2 + 9^2 = 187$$

$$1^2 + 8^2 + 7^2 = 114$$

$$1^2 + 1^2 + 4^2 = 18$$

$$1^2 + 8^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9439 is not happy

$$9^2 + 4^2 + 4^2 + 0^2 = 113$$

$$1^2 + 1^2 + 3^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9440 is not happy

$$9^2 + 4^2 + 4^2 + 1^2 = 114$$

$$1^2 + 1^2 + 4^2 = 18$$

$$1^2 + 8^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9441 is not happy

$$9^2 + 4^2 + 4^2 + 2^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9442 is not happy

$$9^2 + 4^2 + 4^2 + 3^2 = 122$$

$$1^2 + 2^2 + 2^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9443 is not happy

$$9^2 + 4^2 + 4^2 + 4^2 = 129$$

$$1^2 + 2^2 + 9^2 = 86$$

$$8^2 + 6^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

The number 9444 is happy

$$9^2 + 4^2 + 4^2 + 5^2 = 138$$

$$1^2 + 3^2 + 8^2 = 74$$

$$7^2 + 4^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9445 is not happy
 $9^2 + 4^2 + 4^2 + 6^2 = 149$
 $1^2 + 4^2 + 9^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9446 is not happy
 $9^2 + 4^2 + 4^2 + 7^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9447 is not happy
 $9^2 + 4^2 + 4^2 + 8^2 = 177$
 $1^2 + 7^2 + 7^2 = 99$
 $9^2 + 9^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9448 is not happy
 $9^2 + 4^2 + 4^2 + 9^2 = 194$
 $1^2 + 9^2 + 4^2 = 98$

$9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9449 is not happy
 $9^2 + 4^2 + 5^2 + 0^2 = 122$
 $1^2 + 2^2 + 2^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9450 is not happy
 $9^2 + 4^2 + 5^2 + 1^2 = 123$
 $1^2 + 2^2 + 3^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9451 is not happy
 $9^2 + 4^2 + 5^2 + 2^2 = 126$
 $1^2 + 2^2 + 6^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9452 is not happy
 $9^2 + 4^2 + 5^2 + 3^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9453 is not happy
 $9^2 + 4^2 + 5^2 + 4^2 = 138$
 $1^2 + 3^2 + 8^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9454 is not happy
 $9^2 + 4^2 + 5^2 + 5^2 = 147$
 $1^2 + 4^2 + 7^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9455 is not happy
 $9^2 + 4^2 + 5^2 + 6^2 = 158$
 $1^2 + 5^2 + 8^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9456 is not happy
 $9^2 + 4^2 + 5^2 + 7^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9457 is not happy
 $9^2 + 4^2 + 5^2 + 8^2 = 186$
 $1^2 + 8^2 + 6^2 = 101$
 $1^2 + 0^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9458 is not happy
 $9^2 + 4^2 + 5^2 + 9^2 = 203$
 $2^2 + 0^2 + 3^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9459 is happy
 $9^2 + 4^2 + 6^2 + 0^2 = 133$
 $1^2 + 3^2 + 3^2 = 19$
 $1^2 + 9^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9460 is happy
 $9^2 + 4^2 + 6^2 + 1^2 = 134$
 $1^2 + 3^2 + 4^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$

The number 9461 is not happy

$$9^2 + 4^2 + 6^2 + 2^2 = 137$$

$$1^2 + 3^2 + 7^2 = 59$$

$$5^2 + 9^2 = 106$$

$$1^2 + 0^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9462 is not happy

$$9^2 + 4^2 + 6^2 + 3^2 = 142$$

$$1^2 + 4^2 + 2^2 = 21$$

$$2^2 + 1^2 = 5$$

$$5^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9463 is not happy

$$9^2 + 4^2 + 6^2 + 4^2 = 149$$

$$1^2 + 4^2 + 9^2 = 98$$

$$9^2 + 8^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

The number 9464 is not happy

$$9^2 + 4^2 + 6^2 + 5^2 = 158$$

$$1^2 + 5^2 + 8^2 = 90$$

$$9^2 + 0^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9465 is not happy

$$9^2 + 4^2 + 6^2 + 6^2 = 169$$

$$1^2 + 6^2 + 9^2 = 118$$

$$1^2 + 1^2 + 8^2 = 66$$

$$6^2 + 6^2 = 72$$

$$7^2 + 2^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9466 is not happy

$$9^2 + 4^2 + 6^2 + 7^2 = 182$$

$$1^2 + 8^2 + 2^2 = 69$$

$$6^2 + 9^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9467 is not happy

$$9^2 + 4^2 + 6^2 + 8^2 = 197$$

$$1^2 + 9^2 + 7^2 = 131$$

$$1^2 + 3^2 + 1^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9468 is not happy

$$9^2 + 4^2 + 6^2 + 9^2 = 214$$

$$2^2 + 1^2 + 4^2 = 21$$

$$2^2 + 1^2 = 5$$

$$5^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9469 is not happy
 $9^2 + 4^2 + 7^2 + 0^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9470 is not happy
 $9^2 + 4^2 + 7^2 + 1^2 = 147$
 $1^2 + 4^2 + 7^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9471 is not happy
 $9^2 + 4^2 + 7^2 + 2^2 = 150$
 $1^2 + 5^2 + 0^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9472 is not happy
 $9^2 + 4^2 + 7^2 + 3^2 = 155$

$$1^2 + 5^2 + 5^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9473 is not happy

$$9^2 + 4^2 + 7^2 + 4^2 = 162$$

$$1^2 + 6^2 + 2^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9474 is not happy

$$9^2 + 4^2 + 7^2 + 5^2 = 171$$

$$1^2 + 7^2 + 1^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9475 is not happy

$$9^2 + 4^2 + 7^2 + 6^2 = 182$$

$$1^2 + 8^2 + 2^2 = 69$$

$$6^2 + 9^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9476 is not happy
 $9^2 + 4^2 + 7^2 + 7^2 = 195$
 $1^2 + 9^2 + 5^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9477 is not happy
 $9^2 + 4^2 + 7^2 + 8^2 = 210$
 $2^2 + 1^2 + 0^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9478 is not happy
 $9^2 + 4^2 + 7^2 + 9^2 = 227$
 $2^2 + 2^2 + 7^2 = 57$
 $5^2 + 7^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9479 is not happy
 $9^2 + 4^2 + 8^2 + 0^2 = 161$
 $1^2 + 6^2 + 1^2 = 38$
 $3^2 + 8^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9480 is not happy
 $9^2 + 4^2 + 8^2 + 1^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9481 is not happy
 $9^2 + 4^2 + 8^2 + 2^2 = 165$
 $1^2 + 6^2 + 5^2 = 62$
 $6^2 + 2^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9482 is not happy
 $9^2 + 4^2 + 8^2 + 3^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9483 is not happy
 $9^2 + 4^2 + 8^2 + 4^2 = 177$
 $1^2 + 7^2 + 7^2 = 99$
 $9^2 + 9^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$

$2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9484 is not happy
 $9^2 + 4^2 + 8^2 + 5^2 = 186$
 $1^2 + 8^2 + 6^2 = 101$
 $1^2 + 0^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9485 is not happy
 $9^2 + 4^2 + 8^2 + 6^2 = 197$
 $1^2 + 9^2 + 7^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9486 is not happy
 $9^2 + 4^2 + 8^2 + 7^2 = 210$
 $2^2 + 1^2 + 0^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9487 is not happy
 $9^2 + 4^2 + 8^2 + 8^2 = 225$
 $2^2 + 2^2 + 5^2 = 33$
 $3^2 + 3^2 = 18$

$1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9488 is not happy
 $9^2 + 4^2 + 8^2 + 9^2 = 242$
 $2^2 + 4^2 + 2^2 = 24$
 $2^2 + 4^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 The number 9489 is not happy
 $9^2 + 4^2 + 9^2 + 0^2 = 178$
 $1^2 + 7^2 + 8^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9490 is not happy
 $9^2 + 4^2 + 9^2 + 1^2 = 179$
 $1^2 + 7^2 + 9^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9491 is not happy
 $9^2 + 4^2 + 9^2 + 2^2 = 182$
 $1^2 + 8^2 + 2^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$

$5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9492 is not happy
 $9^2 + 4^2 + 9^2 + 3^2 = 187$
 $1^2 + 8^2 + 7^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9493 is not happy
 $9^2 + 4^2 + 9^2 + 4^2 = 194$
 $1^2 + 9^2 + 4^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9494 is not happy
 $9^2 + 4^2 + 9^2 + 5^2 = 203$
 $2^2 + 0^2 + 3^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9495 is happy
 $9^2 + 4^2 + 9^2 + 6^2 = 214$
 $2^2 + 1^2 + 4^2 = 21$
 $2^2 + 1^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$

$1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9496 is not happy
 $9^2 + 4^2 + 9^2 + 7^2 = 227$
 $2^2 + 2^2 + 7^2 = 57$
 $5^2 + 7^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9497 is not happy
 $9^2 + 4^2 + 9^2 + 8^2 = 242$
 $2^2 + 4^2 + 2^2 = 24$
 $2^2 + 4^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 The number 9498 is not happy
 $9^2 + 4^2 + 9^2 + 9^2 = 259$
 $2^2 + 5^2 + 9^2 = 110$
 $1^2 + 1^2 + 0^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9499 is not happy
 $9^2 + 5^2 + 0^2 + 0^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9500 is not happy
 $9^2 + 5^2 + 0^2 + 1^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$

$5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9501 is not happy
 $9^2 + 5^2 + 0^2 + 2^2 = 110$
 $1^2 + 1^2 + 0^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9502 is not happy
 $9^2 + 5^2 + 0^2 + 3^2 = 115$
 $1^2 + 1^2 + 5^2 = 27$
 $2^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9503 is not happy
 $9^2 + 5^2 + 0^2 + 4^2 = 122$
 $1^2 + 2^2 + 2^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9504 is not happy

$$9^2 + 5^2 + 0^2 + 5^2 = 131$$

$$1^2 + 3^2 + 1^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9505 is not happy

$$9^2 + 5^2 + 0^2 + 6^2 = 142$$

$$1^2 + 4^2 + 2^2 = 21$$

$$2^2 + 1^2 = 5$$

$$5^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9506 is not happy

$$9^2 + 5^2 + 0^2 + 7^2 = 155$$

$$1^2 + 5^2 + 5^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9507 is not happy

$$9^2 + 5^2 + 0^2 + 8^2 = 170$$

$$1^2 + 7^2 + 0^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9508 is not happy

$$9^2 + 5^2 + 0^2 + 8^2 = 187$$

$$1^2 + 8^2 + 7^2 = 114$$

$$1^2 + 1^2 + 4^2 = 18$$

$$1^2 + 8^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9509 is not happy

$$9^2 + 5^2 + 1^2 + 0^2 = 107$$

$$1^2 + 0^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9510 is not happy

$$9^2 + 5^2 + 1^2 + 1^2 = 108$$

$$1^2 + 0^2 + 8^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9511 is not happy

$$9^2 + 5^2 + 1^2 + 2^2 = 111$$

$$1^2 + 1^2 + 1^2 = 3$$

$$3^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9512 is not happy
 $9^2 + 5^2 + 1^2 + 3^2 = 116$
 $1^2 + 1^2 + 6^2 = 38$
 $3^2 + 8^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9513 is not happy
 $9^2 + 5^2 + 1^2 + 4^2 = 123$
 $1^2 + 2^2 + 3^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9514 is not happy
 $9^2 + 5^2 + 1^2 + 5^2 = 132$
 $1^2 + 3^2 + 2^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9515 is not happy
 $9^2 + 5^2 + 1^2 + 6^2 = 143$
 $1^2 + 4^2 + 3^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$

$8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9516 is not happy
 $9^2 + 5^2 + 1^2 + 7^2 = 156$
 $1^2 + 5^2 + 6^2 = 62$
 $6^2 + 2^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9517 is not happy
 $9^2 + 5^2 + 1^2 + 8^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9518 is not happy
 $9^2 + 5^2 + 1^2 + 9^2 = 188$
 $1^2 + 8^2 + 8^2 = 129$
 $1^2 + 2^2 + 9^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9519 is happy
 $9^2 + 5^2 + 2^2 + 0^2 = 110$
 $1^2 + 1^2 + 0^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9520 is not happy
 $9^2 + 5^2 + 2^2 + 1^2 = 111$
 $1^2 + 1^2 + 1^2 = 3$
 $3^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$

$6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9521 is not happy
 $9^2 + 5^2 + 2^2 + 2^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9522 is not happy
 $9^2 + 5^2 + 2^2 + 3^2 = 119$
 $1^2 + 1^2 + 9^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9523 is not happy
 $9^2 + 5^2 + 2^2 + 4^2 = 126$
 $1^2 + 2^2 + 6^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9524 is not happy
 $9^2 + 5^2 + 2^2 + 5^2 = 135$
 $1^2 + 3^2 + 5^2 = 35$
 $3^2 + 5^2 = 34$

$3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9525 is not happy
 $9^2 + 5^2 + 2^2 + 6^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9526 is not happy
 $9^2 + 5^2 + 2^2 + 7^2 = 159$
 $1^2 + 5^2 + 9^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9527 is not happy
 $9^2 + 5^2 + 2^2 + 8^2 = 174$
 $1^2 + 7^2 + 4^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9528 is not happy
 $9^2 + 5^2 + 2^2 + 9^2 = 191$
 $1^2 + 9^2 + 1^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9529 is not happy
 $9^2 + 5^2 + 3^2 + 0^2 = 115$
 $1^2 + 1^2 + 5^2 = 27$
 $2^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9530 is not happy
 $9^2 + 5^2 + 3^2 + 1^2 = 116$
 $1^2 + 1^2 + 6^2 = 38$
 $3^2 + 8^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9531 is not happy
 $9^2 + 5^2 + 3^2 + 2^2 = 119$
 $1^2 + 1^2 + 9^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9532 is not happy
 $9^2 + 5^2 + 3^2 + 3^2 = 124$
 $1^2 + 2^2 + 4^2 = 21$
 $2^2 + 1^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9533 is not happy
 $9^2 + 5^2 + 3^2 + 4^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9534 is not happy
 $9^2 + 5^2 + 3^2 + 5^2 = 140$
 $1^2 + 4^2 + 0^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9535 is not happy
 $9^2 + 5^2 + 3^2 + 6^2 = 151$
 $1^2 + 5^2 + 1^2 = 27$
 $2^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$

$8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9536 is not happy
 $9^2 + 5^2 + 3^2 + 7^2 = 164$
 $1^2 + 6^2 + 4^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9537 is not happy
 $9^2 + 5^2 + 3^2 + 8^2 = 179$
 $1^2 + 7^2 + 9^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9538 is not happy
 $9^2 + 5^2 + 3^2 + 9^2 = 196$
 $1^2 + 9^2 + 6^2 = 118$
 $1^2 + 1^2 + 8^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$

$5^2 + 8^2 = 89$
 The number 9539 is not happy
 $9^2 + 5^2 + 4^2 + 0^2 = 122$
 $1^2 + 2^2 + 2^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9540 is not happy
 $9^2 + 5^2 + 4^2 + 1^2 = 123$
 $1^2 + 2^2 + 3^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9541 is not happy
 $9^2 + 5^2 + 4^2 + 2^2 = 126$
 $1^2 + 2^2 + 6^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9542 is not happy
 $9^2 + 5^2 + 4^2 + 3^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9543 is not happy
 $9^2 + 5^2 + 4^2 + 4^2 = 138$
 $1^2 + 3^2 + 8^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9544 is not happy
 $9^2 + 5^2 + 4^2 + 5^2 = 147$
 $1^2 + 4^2 + 7^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9545 is not happy
 $9^2 + 5^2 + 4^2 + 6^2 = 158$
 $1^2 + 5^2 + 8^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9546 is not happy
 $9^2 + 5^2 + 4^2 + 7^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$

$2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9547 is not happy
 $9^2 + 5^2 + 4^2 + 8^2 = 186$
 $1^2 + 8^2 + 6^2 = 101$
 $1^2 + 0^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9548 is not happy
 $9^2 + 5^2 + 4^2 + 9^2 = 203$
 $2^2 + 0^2 + 3^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9549 is happy
 $9^2 + 5^2 + 5^2 + 0^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9550 is not happy
 $9^2 + 5^2 + 5^2 + 1^2 = 132$
 $1^2 + 3^2 + 2^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$

$5^2 + 8^2 = 89$
 The number 9551 is not happy
 $9^2 + 5^2 + 5^2 + 2^2 = 135$
 $1^2 + 3^2 + 5^2 = 35$
 $3^2 + 5^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9552 is not happy
 $9^2 + 5^2 + 5^2 + 3^2 = 140$
 $1^2 + 4^2 + 0^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9553 is not happy
 $9^2 + 5^2 + 5^2 + 4^2 = 147$
 $1^2 + 4^2 + 7^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9554 is not happy
 $9^2 + 5^2 + 5^2 + 5^2 = 156$
 $1^2 + 5^2 + 6^2 = 62$
 $6^2 + 2^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9555 is not happy
 $9^2 + 5^2 + 5^2 + 6^2 = 167$
 $1^2 + 6^2 + 7^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9556 is happy
 $9^2 + 5^2 + 5^2 + 7^2 = 180$
 $1^2 + 8^2 + 0^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9557 is not happy
 $9^2 + 5^2 + 5^2 + 8^2 = 195$
 $1^2 + 9^2 + 5^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9558 is not happy
 $9^2 + 5^2 + 5^2 + 9^2 = 212$
 $2^2 + 1^2 + 2^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9559 is not happy

$$9^2 + 5^2 + 6^2 + 0^2 = 142$$

$$1^2 + 4^2 + 2^2 = 21$$

$$2^2 + 1^2 = 5$$

$$5^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9560 is not happy

$$9^2 + 5^2 + 6^2 + 1^2 = 143$$

$$1^2 + 4^2 + 3^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9561 is not happy

$$9^2 + 5^2 + 6^2 + 2^2 = 146$$

$$1^2 + 4^2 + 6^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9562 is not happy

$$9^2 + 5^2 + 6^2 + 3^2 = 151$$

$$1^2 + 5^2 + 1^2 = 27$$

$$2^2 + 7^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9563 is not happy
 $9^2 + 5^2 + 6^2 + 4^2 = 158$
 $1^2 + 5^2 + 8^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9564 is not happy
 $9^2 + 5^2 + 6^2 + 5^2 = 167$
 $1^2 + 6^2 + 7^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9565 is happy
 $9^2 + 5^2 + 6^2 + 6^2 = 178$
 $1^2 + 7^2 + 8^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9566 is not happy
 $9^2 + 5^2 + 6^2 + 7^2 = 191$
 $1^2 + 9^2 + 1^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9567 is not happy
 $9^2 + 5^2 + 6^2 + 8^2 = 206$
 $2^2 + 0^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9568 is not happy
 $9^2 + 5^2 + 6^2 + 8^2 = 223$
 $2^2 + 2^2 + 3^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9569 is not happy
 $9^2 + 5^2 + 7^2 + 0^2 = 155$
 $1^2 + 5^2 + 5^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9570 is not happy
 $9^2 + 5^2 + 7^2 + 1^2 = 156$
 $1^2 + 5^2 + 6^2 = 62$
 $6^2 + 2^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9571 is not happy
 $9^2 + 5^2 + 7^2 + 2^2 = 159$
 $1^2 + 5^2 + 9^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$

$8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9572 is not happy
 $9^2 + 5^2 + 7^2 + 3^2 = 164$
 $1^2 + 6^2 + 4^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9573 is not happy
 $9^2 + 5^2 + 7^2 + 4^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9574 is not happy
 $9^2 + 5^2 + 7^2 + 5^2 = 180$
 $1^2 + 8^2 + 0^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9575 is not happy
 $9^2 + 5^2 + 7^2 + 6^2 = 191$
 $1^2 + 9^2 + 1^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$

$5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9576 is not happy
 $9^2 + 5^2 + 7^2 + 7^2 = 204$
 $2^2 + 0^2 + 4^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 The number 9577 is not happy
 $9^2 + 5^2 + 7^2 + 8^2 = 219$
 $2^2 + 1^2 + 9^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9578 is happy
 $9^2 + 5^2 + 7^2 + 9^2 = 236$
 $2^2 + 3^2 + 6^2 = 49$
 $4^2 + 9^2 = 97$
 $9^2 + 7^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9579 is happy
 $9^2 + 5^2 + 8^2 + 0^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9580 is not happy
 $9^2 + 5^2 + 8^2 + 1^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$

$4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9581 is not happy
 $9^2 + 5^2 + 8^2 + 2^2 = 174$
 $1^2 + 7^2 + 4^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9582 is not happy
 $9^2 + 5^2 + 8^2 + 3^2 = 179$
 $1^2 + 7^2 + 9^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9583 is not happy
 $9^2 + 5^2 + 8^2 + 4^2 = 186$
 $1^2 + 8^2 + 6^2 = 101$
 $1^2 + 0^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9584 is not happy
 $9^2 + 5^2 + 8^2 + 5^2 = 195$
 $1^2 + 9^2 + 5^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9585 is not happy
 $9^2 + 5^2 + 8^2 + 6^2 = 206$
 $2^2 + 0^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9586 is not happy
 $9^2 + 5^2 + 8^2 + 7^2 = 219$
 $2^2 + 1^2 + 9^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9587 is happy
 $9^2 + 5^2 + 8^2 + 8^2 = 234$
 $2^2 + 3^2 + 4^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9588 is not happy
 $9^2 + 5^2 + 8^2 + 9^2 = 251$
 $2^2 + 5^2 + 1^2 = 30$
 $3^2 + 0^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9589 is not happy
 $9^2 + 5^2 + 9^2 + 0^2 = 187$
 $1^2 + 8^2 + 7^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$

$1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9590 is not happy
 $9^2 + 5^2 + 9^2 + 1^2 = 188$
 $1^2 + 8^2 + 8^2 = 129$
 $1^2 + 2^2 + 9^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9591 is happy
 $9^2 + 5^2 + 9^2 + 2^2 = 191$
 $1^2 + 9^2 + 1^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9592 is not happy
 $9^2 + 5^2 + 9^2 + 3^2 = 196$
 $1^2 + 9^2 + 6^2 = 118$
 $1^2 + 1^2 + 8^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9593 is not happy
 $9^2 + 5^2 + 9^2 + 4^2 = 203$
 $2^2 + 0^2 + 3^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9594 is happy
 $9^2 + 5^2 + 9^2 + 5^2 = 212$
 $2^2 + 1^2 + 2^2 = 9$

$9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9595 is not happy
 $9^2 + 5^2 + 9^2 + 6^2 = 223$
 $2^2 + 2^2 + 3^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9596 is not happy
 $9^2 + 5^2 + 9^2 + 7^2 = 236$
 $2^2 + 3^2 + 6^2 = 49$
 $4^2 + 9^2 = 97$
 $9^2 + 7^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9597 is happy
 $9^2 + 5^2 + 9^2 + 8^2 = 251$
 $2^2 + 5^2 + 1^2 = 30$
 $3^2 + 0^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9598 is not happy
 $9^2 + 5^2 + 9^2 + 9^2 = 268$
 $2^2 + 6^2 + 8^2 = 104$
 $1^2 + 0^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$

$2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9599 is not happy
 $9^2 + 6^2 + 0^2 + 0^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9600 is not happy
 $9^2 + 6^2 + 0^2 + 1^2 = 118$
 $1^2 + 1^2 + 8^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9601 is not happy
 $9^2 + 6^2 + 0^2 + 2^2 = 121$
 $1^2 + 2^2 + 1^2 = 6$
 $6^2 = 36$
 $3^2 + 6^2 = 45$
 $4^2 + 5^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$

$4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9602 is not happy
 $9^2 + 6^2 + 0^2 + 3^2 = 126$
 $1^2 + 2^2 + 6^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9603 is not happy
 $9^2 + 6^2 + 0^2 + 4^2 = 133$
 $1^2 + 3^2 + 3^2 = 19$
 $1^2 + 9^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9604 is happy
 $9^2 + 6^2 + 0^2 + 5^2 = 142$
 $1^2 + 4^2 + 2^2 = 21$
 $2^2 + 1^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9605 is not happy
 $9^2 + 6^2 + 0^2 + 6^2 = 153$
 $1^2 + 5^2 + 3^2 = 35$
 $3^2 + 5^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9606 is not happy
 $9^2 + 6^2 + 0^2 + 7^2 = 166$
 $1^2 + 6^2 + 6^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9607 is not happy
 $9^2 + 6^2 + 0^2 + 8^2 = 181$
 $1^2 + 8^2 + 1^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9608 is not happy
 $9^2 + 6^2 + 0^2 + 9^2 = 198$
 $1^2 + 9^2 + 8^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9609 is not happy
 $9^2 + 6^2 + 1^2 + 0^2 = 118$
 $1^2 + 1^2 + 8^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$

$5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9610 is not happy
 $9^2 + 6^2 + 1^2 + 1^2 = 119$
 $1^2 + 1^2 + 9^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9611 is not happy
 $9^2 + 6^2 + 1^2 + 2^2 = 122$
 $1^2 + 2^2 + 2^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9612 is not happy
 $9^2 + 6^2 + 1^2 + 3^2 = 127$
 $1^2 + 2^2 + 7^2 = 54$
 $5^2 + 4^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9613 is not happy
 $9^2 + 6^2 + 1^2 + 4^2 = 134$
 $1^2 + 3^2 + 4^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9614 is not happy
 $9^2 + 6^2 + 1^2 + 5^2 = 143$
 $1^2 + 4^2 + 3^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9615 is not happy
 $9^2 + 6^2 + 1^2 + 6^2 = 154$
 $1^2 + 5^2 + 4^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9616 is not happy
 $9^2 + 6^2 + 1^2 + 7^2 = 167$
 $1^2 + 6^2 + 7^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9617 is happy
 $9^2 + 6^2 + 1^2 + 8^2 = 182$
 $1^2 + 8^2 + 2^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9618 is not happy

$$9^2 + 6^2 + 1^2 + 8^2 = 199$$

$$1^2 + 9^2 + 9^2 = 163$$

$$1^2 + 6^2 + 3^2 = 46$$

$$4^2 + 6^2 = 52$$

$$5^2 + 2^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9619 is not happy

$$9^2 + 6^2 + 2^2 + 0^2 = 121$$

$$1^2 + 2^2 + 1^2 = 6$$

$$6^2 = 36$$

$$3^2 + 6^2 = 45$$

$$4^2 + 5^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9620 is not happy

$$9^2 + 6^2 + 2^2 + 1^2 = 122$$

$$1^2 + 2^2 + 2^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9621 is not happy

$$9^2 + 6^2 + 2^2 + 2^2 = 125$$

$$1^2 + 2^2 + 5^2 = 30$$

$3^2 + 0^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9622 is not happy
 $9^2 + 6^2 + 2^2 + 3^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9623 is happy
 $9^2 + 6^2 + 2^2 + 4^2 = 137$
 $1^2 + 3^2 + 7^2 = 59$
 $5^2 + 9^2 = 106$
 $1^2 + 0^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9624 is not happy
 $9^2 + 6^2 + 2^2 + 5^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9625 is not happy
 $9^2 + 6^2 + 2^2 + 6^2 = 157$
 $1^2 + 5^2 + 7^2 = 75$
 $7^2 + 5^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$

$4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9626 is not happy
 $9^2 + 6^2 + 2^2 + 7^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9627 is not happy
 $9^2 + 6^2 + 2^2 + 8^2 = 185$
 $1^2 + 8^2 + 5^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9628 is not happy
 $9^2 + 6^2 + 2^2 + 9^2 = 202$
 $2^2 + 0^2 + 2^2 = 8$
 $8^2 = 64$
 $6^2 + 4^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9629 is not happy
 $9^2 + 6^2 + 3^2 + 0^2 = 126$
 $1^2 + 2^2 + 6^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$

$2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9630 is not happy
 $9^2 + 6^2 + 3^2 + 1^2 = 127$
 $1^2 + 2^2 + 7^2 = 54$
 $5^2 + 4^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9631 is not happy
 $9^2 + 6^2 + 3^2 + 2^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9632 is happy
 $9^2 + 6^2 + 3^2 + 3^2 = 135$
 $1^2 + 3^2 + 5^2 = 35$
 $3^2 + 5^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9633 is not happy
 $9^2 + 6^2 + 3^2 + 4^2 = 142$
 $1^2 + 4^2 + 2^2 = 21$
 $2^2 + 1^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9634 is not happy
 $9^2 + 6^2 + 3^2 + 5^2 = 151$
 $1^2 + 5^2 + 1^2 = 27$
 $2^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9635 is not happy
 $9^2 + 6^2 + 3^2 + 6^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9636 is not happy
 $9^2 + 6^2 + 3^2 + 7^2 = 175$
 $1^2 + 7^2 + 5^2 = 75$
 $7^2 + 5^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9637 is not happy

$$9^2 + 6^2 + 3^2 + 8^2 = 190$$

$$1^2 + 9^2 + 0^2 = 82$$

$$8^2 + 2^2 = 68$$

$$6^2 + 8^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

The number 9638 is happy

$$9^2 + 6^2 + 3^2 + 9^2 = 207$$

$$2^2 + 0^2 + 7^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9639 is not happy

$$9^2 + 6^2 + 4^2 + 0^2 = 133$$

$$1^2 + 3^2 + 3^2 = 19$$

$$1^2 + 9^2 = 82$$

$$8^2 + 2^2 = 68$$

$$6^2 + 8^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

The number 9640 is happy

$$9^2 + 6^2 + 4^2 + 1^2 = 134$$

$$1^2 + 3^2 + 4^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9641 is not happy

$$9^2 + 6^2 + 4^2 + 2^2 = 137$$

$$1^2 + 3^2 + 7^2 = 59$$

$$5^2 + 9^2 = 106$$

$$1^2 + 0^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9642 is not happy

$$9^2 + 6^2 + 4^2 + 3^2 = 142$$

$$1^2 + 4^2 + 2^2 = 21$$

$2^2 + 1^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9643 is not happy
 $9^2 + 6^2 + 4^2 + 4^2 = 149$
 $1^2 + 4^2 + 9^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9644 is not happy
 $9^2 + 6^2 + 4^2 + 5^2 = 158$
 $1^2 + 5^2 + 8^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9645 is not happy
 $9^2 + 6^2 + 4^2 + 6^2 = 169$
 $1^2 + 6^2 + 9^2 = 118$
 $1^2 + 1^2 + 8^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9646 is not happy

$$9^2 + 6^2 + 4^2 + 7^2 = 182$$

$$1^2 + 8^2 + 2^2 = 69$$

$$6^2 + 9^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9647 is not happy

$$9^2 + 6^2 + 4^2 + 8^2 = 197$$

$$1^2 + 9^2 + 7^2 = 131$$

$$1^2 + 3^2 + 1^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9648 is not happy

$$9^2 + 6^2 + 4^2 + 9^2 = 214$$

$$2^2 + 1^2 + 4^2 = 21$$

$$2^2 + 1^2 = 5$$

$$5^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9649 is not happy

$$9^2 + 6^2 + 5^2 + 0^2 = 142$$

$$1^2 + 4^2 + 2^2 = 21$$

$$2^2 + 1^2 = 5$$

$$5^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9650 is not happy
 $9^2 + 6^2 + 5^2 + 1^2 = 143$
 $1^2 + 4^2 + 3^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9651 is not happy
 $9^2 + 6^2 + 5^2 + 2^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9652 is not happy
 $9^2 + 6^2 + 5^2 + 3^2 = 151$
 $1^2 + 5^2 + 1^2 = 27$
 $2^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9653 is not happy
 $9^2 + 6^2 + 5^2 + 4^2 = 158$
 $1^2 + 5^2 + 8^2 = 90$

$9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9654 is not happy
 $9^2 + 6^2 + 5^2 + 5^2 = 167$
 $1^2 + 6^2 + 7^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9655 is happy
 $9^2 + 6^2 + 5^2 + 6^2 = 178$
 $1^2 + 7^2 + 8^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9656 is not happy
 $9^2 + 6^2 + 5^2 + 7^2 = 191$
 $1^2 + 9^2 + 1^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9657 is not happy
 $9^2 + 6^2 + 5^2 + 8^2 = 206$
 $2^2 + 0^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$

The number 9658 is not happy

$$9^2 + 6^2 + 5^2 + 8^2 = 223$$

$$2^2 + 2^2 + 3^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9659 is not happy

$$9^2 + 6^2 + 6^2 + 0^2 = 153$$

$$1^2 + 5^2 + 3^2 = 35$$

$$3^2 + 5^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9660 is not happy

$$9^2 + 6^2 + 6^2 + 0^2 = 154$$

$$1^2 + 5^2 + 4^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

The number 9661 is not happy

$$9^2 + 6^2 + 6^2 + 1^2 = 157$$

$$1^2 + 5^2 + 7^2 = 75$$

$$7^2 + 5^2 = 74$$

$$7^2 + 4^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$1^2 + 6^2 = 37$
 The number 9662 is not happy
 $9^2 + 6^2 + 6^2 + 3^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9663 is not happy
 $9^2 + 6^2 + 6^2 + 4^2 = 169$
 $1^2 + 6^2 + 9^2 = 118$
 $1^2 + 1^2 + 8^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9664 is not happy
 $9^2 + 6^2 + 6^2 + 5^2 = 178$
 $1^2 + 7^2 + 8^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9665 is not happy
 $9^2 + 6^2 + 6^2 + 6^2 = 189$
 $1^2 + 8^2 + 9^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$

$3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9666 is not happy
 $9^2 + 6^2 + 6^2 + 7^2 = 202$
 $2^2 + 0^2 + 2^2 = 8$
 $8^2 = 64$
 $6^2 + 4^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9667 is not happy
 $9^2 + 6^2 + 6^2 + 8^2 = 217$
 $2^2 + 1^2 + 7^2 = 54$
 $5^2 + 4^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9668 is not happy
 $9^2 + 6^2 + 6^2 + 9^2 = 234$
 $2^2 + 3^2 + 4^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9669 is not happy
 $9^2 + 6^2 + 7^2 + 0^2 = 166$
 $1^2 + 6^2 + 6^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9670 is not happy
 $9^2 + 6^2 + 7^2 + 1^2 = 167$
 $1^2 + 6^2 + 7^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9671 is happy
 $9^2 + 6^2 + 7^2 + 2^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9672 is not happy
 $9^2 + 6^2 + 7^2 + 3^2 = 175$
 $1^2 + 7^2 + 5^2 = 75$
 $7^2 + 5^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9673 is not happy
 $9^2 + 6^2 + 7^2 + 4^2 = 182$
 $1^2 + 8^2 + 2^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$

$1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9674 is not happy
 $9^2 + 6^2 + 7^2 + 5^2 = 191$
 $1^2 + 9^2 + 1^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9675 is not happy
 $9^2 + 6^2 + 7^2 + 6^2 = 202$
 $2^2 + 0^2 + 2^2 = 8$
 $8^2 = 64$
 $6^2 + 4^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9676 is not happy
 $9^2 + 6^2 + 7^2 + 7^2 = 215$
 $2^2 + 1^2 + 5^2 = 30$
 $3^2 + 0^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9677 is not happy
 $9^2 + 6^2 + 7^2 + 8^2 = 230$
 $2^2 + 3^2 + 0^2 = 13$
 $1^2 + 3^2 = 10$

$$1^2 + 0^2 = 1$$

The number 9678 is happy

$$9^2 + 6^2 + 7^2 + 8^2 = 247$$

$$2^2 + 4^2 + 7^2 = 69$$

$$6^2 + 9^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9679 is not happy

$$9^2 + 6^2 + 8^2 + 0^2 = 181$$

$$1^2 + 8^2 + 1^2 = 66$$

$$6^2 + 6^2 = 72$$

$$7^2 + 2^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9680 is not happy

$$9^2 + 6^2 + 8^2 + 1^2 = 182$$

$$1^2 + 8^2 + 2^2 = 69$$

$$6^2 + 9^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9681 is not happy

$$9^2 + 6^2 + 8^2 + 2^2 = 185$$

$$1^2 + 8^2 + 5^2 = 90$$

$$9^2 + 0^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9682 is not happy
 $9^2 + 6^2 + 8^2 + 3^2 = 190$
 $1^2 + 9^2 + 0^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9683 is happy
 $9^2 + 6^2 + 8^2 + 4^2 = 197$
 $1^2 + 9^2 + 7^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9684 is not happy
 $9^2 + 6^2 + 8^2 + 5^2 = 206$
 $2^2 + 0^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9685 is not happy
 $9^2 + 6^2 + 8^2 + 6^2 = 217$
 $2^2 + 1^2 + 7^2 = 54$
 $5^2 + 4^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9686 is not happy
 $9^2 + 6^2 + 8^2 + 7^2 = 230$
 $2^2 + 3^2 + 0^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9687 is happy
 $9^2 + 6^2 + 8^2 + 8^2 = 245$
 $2^2 + 4^2 + 5^2 = 45$
 $4^2 + 5^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9688 is not happy
 $9^2 + 6^2 + 8^2 + 9^2 = 262$
 $2^2 + 6^2 + 2^2 = 44$
 $4^2 + 4^2 = 32$
 $3^2 + 2^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9689 is happy
 $9^2 + 6^2 + 9^2 + 0^2 = 198$
 $1^2 + 9^2 + 8^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9690 is not happy
 $9^2 + 6^2 + 9^2 + 1^2 = 199$
 $1^2 + 9^2 + 9^2 = 163$
 $1^2 + 6^2 + 3^2 = 46$
 $4^2 + 6^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$

$8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9691 is not happy
 $9^2 + 6^2 + 9^2 + 2^2 = 202$
 $2^2 + 0^2 + 2^2 = 8$
 $8^2 = 64$
 $6^2 + 4^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9692 is not happy
 $9^2 + 6^2 + 9^2 + 3^2 = 207$
 $2^2 + 0^2 + 7^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9693 is not happy
 $9^2 + 6^2 + 9^2 + 4^2 = 214$
 $2^2 + 1^2 + 4^2 = 21$
 $2^2 + 1^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9694 is not happy

$$9^2 + 6^2 + 9^2 + 5^2 = 223$$

$$2^2 + 2^2 + 3^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9695 is not happy

$$9^2 + 6^2 + 9^2 + 6^2 = 234$$

$$2^2 + 3^2 + 4^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9696 is not happy

$$9^2 + 6^2 + 9^2 + 7^2 = 247$$

$$2^2 + 4^2 + 7^2 = 69$$

$$6^2 + 9^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9697 is not happy

$$9^2 + 6^2 + 9^2 + 8^2 = 262$$

$$2^2 + 6^2 + 2^2 = 44$$

$$4^2 + 4^2 = 32$$

$$3^2 + 2^2 = 13$$

$$1^2 + 3^2 = 10$$

$$1^2 + 0^2 = 1$$

The number 9698 is happy

$$9^2 + 6^2 + 9^2 + 9^2 = 279$$

$$2^2 + 7^2 + 9^2 = 134$$

$$1^2 + 3^2 + 4^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9699 is not happy
 $9^2 + 7^2 + 0^2 + 0^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9700 is happy
 $9^2 + 7^2 + 0^2 + 1^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9701 is not happy
 $9^2 + 7^2 + 0^2 + 2^2 = 134$
 $1^2 + 3^2 + 4^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9702 is not happy
 $9^2 + 7^2 + 0^2 + 3^2 = 139$
 $1^2 + 3^2 + 9^2 = 91$
 $9^2 + 1^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9703 is happy
 $9^2 + 7^2 + 0^2 + 4^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$

$4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9704 is not happy
 $9^2 + 7^2 + 0^2 + 5^2 = 155$
 $1^2 + 5^2 + 5^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9705 is not happy
 $9^2 + 7^2 + 0^2 + 6^2 = 166$
 $1^2 + 6^2 + 6^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9706 is not happy
 $9^2 + 7^2 + 0^2 + 7^2 = 179$
 $1^2 + 7^2 + 9^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9707 is not happy
 $9^2 + 7^2 + 0^2 + 8^2 = 194$
 $1^2 + 9^2 + 4^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$

The number 9708 is not happy

$$9^2 + 7^2 + 0^2 + 8^2 = 211$$

$$2^2 + 1^2 + 1^2 = 6$$

$$6^2 = 36$$

$$3^2 + 6^2 = 45$$

$$4^2 + 5^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9709 is not happy

$$9^2 + 7^2 + 1^2 + 0^2 = 131$$

$$1^2 + 3^2 + 1^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9710 is not happy

$$9^2 + 7^2 + 1^2 + 1^2 = 132$$

$$1^2 + 3^2 + 2^2 = 14$$

$$1^2 + 4^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9711 is not happy

$$9^2 + 7^2 + 1^2 + 2^2 = 135$$

$$1^2 + 3^2 + 5^2 = 35$$

$$3^2 + 5^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9712 is not happy
 $9^2 + 7^2 + 1^2 + 3^2 = 140$
 $1^2 + 4^2 + 0^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9713 is not happy
 $9^2 + 7^2 + 1^2 + 4^2 = 147$
 $1^2 + 4^2 + 7^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9714 is not happy
 $9^2 + 7^2 + 1^2 + 5^2 = 156$
 $1^2 + 5^2 + 6^2 = 62$
 $6^2 + 2^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9715 is not happy

$$9^2 + 7^2 + 1^2 + 6^2 = 167$$

$$1^2 + 6^2 + 7^2 = 86$$

$$8^2 + 6^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

The number 9716 is happy

$$9^2 + 7^2 + 1^2 + 7^2 = 180$$

$$1^2 + 8^2 + 0^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9717 is not happy

$$9^2 + 7^2 + 1^2 + 8^2 = 195$$

$$1^2 + 9^2 + 5^2 = 107$$

$$1^2 + 0^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9718 is not happy

$$9^2 + 7^2 + 1^2 + 9^2 = 212$$

$$2^2 + 1^2 + 2^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9719 is not happy

$$9^2 + 7^2 + 2^2 + 0^2 = 134$$

$$1^2 + 3^2 + 4^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9720 is not happy

$$9^2 + 7^2 + 2^2 + 1^2 = 135$$

$$1^2 + 3^2 + 5^2 = 35$$

$$3^2 + 5^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9721 is not happy

$$9^2 + 7^2 + 2^2 + 2^2 = 138$$

$$1^2 + 3^2 + 8^2 = 74$$

$$7^2 + 4^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9722 is not happy

$$9^2 + 7^2 + 2^2 + 3^2 = 143$$

$$1^2 + 4^2 + 3^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9723 is not happy

$$9^2 + 7^2 + 2^2 + 4^2 = 150$$

$$1^2 + 5^2 + 0^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9724 is not happy
 $9^2 + 7^2 + 2^2 + 5^2 = 159$
 $1^2 + 5^2 + 9^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9725 is not happy
 $9^2 + 7^2 + 2^2 + 6^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9726 is not happy
 $9^2 + 7^2 + 2^2 + 7^2 = 183$
 $1^2 + 8^2 + 3^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9727 is not happy
 $9^2 + 7^2 + 2^2 + 8^2 = 198$
 $1^2 + 9^2 + 8^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$

$8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9728 is not happy
 $9^2 + 7^2 + 2^2 + 8^2 = 215$
 $2^2 + 1^2 + 5^2 = 30$
 $3^2 + 0^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9729 is not happy
 $9^2 + 7^2 + 3^2 + 0^2 = 139$
 $1^2 + 3^2 + 9^2 = 91$
 $9^2 + 1^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9730 is happy
 $9^2 + 7^2 + 3^2 + 1^2 = 140$
 $1^2 + 4^2 + 0^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9731 is not happy
 $9^2 + 7^2 + 3^2 + 2^2 = 143$
 $1^2 + 4^2 + 3^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$

$4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9732 is not happy
 $9^2 + 7^2 + 3^2 + 3^2 = 148$
 $1^2 + 4^2 + 8^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9733 is not happy
 $9^2 + 7^2 + 3^2 + 4^2 = 155$
 $1^2 + 5^2 + 5^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9734 is not happy
 $9^2 + 7^2 + 3^2 + 5^2 = 164$
 $1^2 + 6^2 + 4^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9735 is not happy
 $9^2 + 7^2 + 3^2 + 6^2 = 175$
 $1^2 + 7^2 + 5^2 = 75$
 $7^2 + 5^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9736 is not happy
 $9^2 + 7^2 + 3^2 + 7^2 = 188$
 $1^2 + 8^2 + 8^2 = 129$
 $1^2 + 2^2 + 9^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9737 is happy
 $9^2 + 7^2 + 3^2 + 8^2 = 203$
 $2^2 + 0^2 + 3^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9738 is happy
 $9^2 + 7^2 + 3^2 + 9^2 = 220$
 $2^2 + 2^2 + 0^2 = 8$
 $8^2 = 64$
 $6^2 + 4^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9739 is not happy
 $9^2 + 7^2 + 4^2 + 0^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9740 is not happy
 $9^2 + 7^2 + 4^2 + 1^2 = 147$
 $1^2 + 4^2 + 7^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$

$8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9741 is not happy
 $9^2 + 7^2 + 4^2 + 2^2 = 150$
 $1^2 + 5^2 + 0^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9742 is not happy
 $9^2 + 7^2 + 4^2 + 3^2 = 155$
 $1^2 + 5^2 + 5^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9743 is not happy
 $9^2 + 7^2 + 4^2 + 4^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9744 is not happy
 $9^2 + 7^2 + 4^2 + 5^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9745 is not happy

$$9^2 + 7^2 + 4^2 + 6^2 = 182$$

$$1^2 + 8^2 + 2^2 = 69$$

$$6^2 + 9^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9746 is not happy

$$9^2 + 7^2 + 4^2 + 7^2 = 195$$

$$1^2 + 9^2 + 5^2 = 107$$

$$1^2 + 0^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9747 is not happy

$$9^2 + 7^2 + 4^2 + 8^2 = 210$$

$$2^2 + 1^2 + 0^2 = 5$$

$$5^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9748 is not happy

$$9^2 + 7^2 + 4^2 + 8^2 = 227$$

$$2^2 + 2^2 + 7^2 = 57$$

$$5^2 + 7^2 = 74$$

$$7^2 + 4^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9749 is not happy

$$9^2 + 7^2 + 5^2 + 0^2 = 155$$

$$1^2 + 5^2 + 5^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9750 is not happy

$$9^2 + 7^2 + 5^2 + 1^2 = 156$$

$$1^2 + 5^2 + 6^2 = 62$$

$$6^2 + 2^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9751 is not happy

$$9^2 + 7^2 + 5^2 + 2^2 = 159$$

$$1^2 + 5^2 + 9^2 = 107$$

$$1^2 + 0^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$5^2 + 8^2 = 89$
 The number 9752 is not happy
 $9^2 + 7^2 + 5^2 + 3^2 = 164$
 $1^2 + 6^2 + 4^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9753 is not happy
 $9^2 + 7^2 + 5^2 + 4^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9754 is not happy
 $9^2 + 7^2 + 5^2 + 5^2 = 180$
 $1^2 + 8^2 + 0^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9755 is not happy
 $9^2 + 7^2 + 5^2 + 6^2 = 191$
 $1^2 + 9^2 + 1^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$

The number 9756 is not happy

$$9^2 + 7^2 + 5^2 + 6^2 = 204$$

$$2^2 + 0^2 + 4^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

The number 9757 is not happy

$$9^2 + 7^2 + 5^2 + 7^2 = 219$$

$$2^2 + 1^2 + 9^2 = 86$$

$$8^2 + 6^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

The number 9758 is happy

$$9^2 + 7^2 + 5^2 + 8^2 = 236$$

$$2^2 + 3^2 + 6^2 = 49$$

$$4^2 + 9^2 = 97$$

$$9^2 + 7^2 = 130$$

$$1^2 + 3^2 + 0^2 = 10$$

$$1^2 + 0^2 = 1$$

The number 9759 is happy

$$9^2 + 7^2 + 6^2 + 0^2 = 166$$

$$1^2 + 6^2 + 6^2 = 73$$

$$7^2 + 3^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

The number 9760 is not happy

$$9^2 + 7^2 + 6^2 + 1^2 = 167$$

$$1^2 + 6^2 + 7^2 = 86$$

$$8^2 + 6^2 = 100$$

$$1^2 + 0^2 + 0^2 = 1$$

The number 9761 is happy

$$9^2 + 7^2 + 6^2 + 2^2 = 170$$

$$1^2 + 7^2 + 0^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9762 is not happy

$$9^2 + 7^2 + 6^2 + 3^2 = 175$$

$$1^2 + 7^2 + 5^2 = 75$$

$$7^2 + 5^2 = 74$$

$$7^2 + 4^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9763 is not happy

$$9^2 + 7^2 + 6^2 + 4^2 = 182$$

$$1^2 + 8^2 + 2^2 = 69$$

$$6^2 + 9^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9764 is not happy

$$9^2 + 7^2 + 6^2 + 5^2 = 191$$

$$1^2 + 9^2 + 1^2 = 83$$

$$8^2 + 3^2 = 73$$

$$7^2 + 3^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

The number 9765 is not happy

$$9^2 + 7^2 + 6^2 + 6^2 = 202$$

$$2^2 + 0^2 + 2^2 = 8$$

$$8^2 = 64$$

$$6^2 + 4^2 = 52$$

$$5^2 + 2^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$5^2 + 8^2 = 89$
 The number 9766 is not happy
 $9^2 + 7^2 + 6^2 + 7^2 = 215$
 $2^2 + 1^2 + 5^2 = 30$
 $3^2 + 0^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9767 is not happy
 $9^2 + 7^2 + 6^2 + 8^2 = 230$
 $2^2 + 3^2 + 0^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9768 is happy
 $9^2 + 7^2 + 6^2 + 9^2 = 247$
 $2^2 + 4^2 + 7^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9769 is not happy
 $9^2 + 7^2 + 7^2 + 0^2 = 179$
 $1^2 + 7^2 + 9^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9770 is not happy
 $9^2 + 7^2 + 7^2 + 1^2 = 180$
 $1^2 + 8^2 + 0^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9771 is not happy
 $9^2 + 7^2 + 7^2 + 2^2 = 183$
 $1^2 + 8^2 + 3^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9772 is not happy
 $9^2 + 7^2 + 7^2 + 3^2 = 188$
 $1^2 + 8^2 + 8^2 = 129$
 $1^2 + 2^2 + 9^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9773 is happy
 $9^2 + 7^2 + 7^2 + 4^2 = 195$
 $1^2 + 9^2 + 5^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9774 is not happy
 $9^2 + 7^2 + 7^2 + 5^2 = 204$
 $2^2 + 0^2 + 4^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 The number 9775 is not happy
 $9^2 + 7^2 + 7^2 + 6^2 = 215$

$$2^2 + 1^2 + 5^2 = 30$$

$$3^2 + 0^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9776 is not happy

$$9^2 + 7^2 + 7^2 + 7^2 = 228$$

$$2^2 + 2^2 + 8^2 = 72$$

$$7^2 + 2^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9777 is not happy

$$9^2 + 7^2 + 7^2 + 8^2 = 243$$

$$2^2 + 4^2 + 3^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9778 is not happy

$$9^2 + 7^2 + 7^2 + 9^2 = 260$$

$$2^2 + 6^2 + 0^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9779 is not happy

$$9^2 + 7^2 + 8^2 + 0^2 = 194$$

$$1^2 + 9^2 + 4^2 = 98$$

$$9^2 + 8^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

The number 9780 is not happy

$$9^2 + 7^2 + 8^2 + 1^2 = 195$$

$$1^2 + 9^2 + 5^2 = 107$$

$$1^2 + 0^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9781 is not happy

$$9^2 + 7^2 + 8^2 + 2^2 = 198$$

$$1^2 + 9^2 + 8^2 = 146$$

$$1^2 + 4^2 + 6^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9782 is not happy

$$9^2 + 7^2 + 8^2 + 3^2 = 203$$

$$2^2 + 0^2 + 3^2 = 13$$

$$1^2 + 3^2 = 10$$

$$1^2 + 0^2 = 1$$

The number 9783 is happy

$$9^2 + 7^2 + 8^2 + 4^2 = 210$$

$$2^2 + 1^2 + 0^2 = 5$$

$$5^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9784 is not happy
 $9^2 + 7^2 + 8^2 + 5^2 = 219$
 $2^2 + 1^2 + 9^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9785 is happy
 $9^2 + 7^2 + 8^2 + 6^2 = 230$
 $2^2 + 3^2 + 0^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9786 is happy
 $9^2 + 7^2 + 8^2 + 7^2 = 243$
 $2^2 + 4^2 + 3^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9787 is not happy
 $9^2 + 7^2 + 8^2 + 8^2 = 258$
 $2^2 + 5^2 + 8^2 = 93$
 $9^2 + 3^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9788 is not happy
 $9^2 + 7^2 + 8^2 + 9^2 = 275$
 $2^2 + 7^2 + 5^2 = 78$
 $7^2 + 8^2 = 113$
 $1^2 + 1^2 + 3^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$

$5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9789 is not happy
 $9^2 + 7^2 + 9^2 + 0^2 = 211$
 $2^2 + 1^2 + 1^2 = 6$
 $6^2 = 36$
 $3^2 + 6^2 = 45$
 $4^2 + 5^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9790 is not happy
 $9^2 + 7^2 + 9^2 + 1^2 = 212$
 $2^2 + 1^2 + 2^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9791 is not happy
 $9^2 + 7^2 + 9^2 + 2^2 = 215$
 $2^2 + 1^2 + 5^2 = 30$
 $3^2 + 0^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9792 is not happy

$$9^2 + 7^2 + 9^2 + 3^2 = 220$$

$$2^2 + 2^2 + 0^2 = 8$$

$$8^2 = 64$$

$$6^2 + 4^2 = 52$$

$$5^2 + 2^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9793 is not happy

$$9^2 + 7^2 + 9^2 + 4^2 = 227$$

$$2^2 + 2^2 + 7^2 = 57$$

$$5^2 + 7^2 = 74$$

$$7^2 + 4^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9794 is not happy

$$9^2 + 7^2 + 9^2 + 5^2 = 236$$

$$2^2 + 3^2 + 6^2 = 49$$

$$4^2 + 9^2 = 97$$

$$9^2 + 7^2 = 130$$

$$1^2 + 3^2 + 0^2 = 10$$

$$1^2 + 0^2 = 1$$

The number 9795 is happy

$$9^2 + 7^2 + 9^2 + 6^2 = 247$$

$$2^2 + 4^2 + 7^2 = 69$$

$$6^2 + 9^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9796 is not happy

$$9^2 + 7^2 + 9^2 + 7^2 = 260$$

$$2^2 + 6^2 + 0^2 = 40$$

$$4^2 + 0^2 = 16$$

$1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9797 is not happy
 $9^2 + 7^2 + 9^2 + 8^2 = 275$
 $2^2 + 7^2 + 5^2 = 78$
 $7^2 + 8^2 = 113$
 $1^2 + 1^2 + 3^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9798 is not happy
 $9^2 + 7^2 + 9^2 + 9^2 = 292$
 $2^2 + 9^2 + 2^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9799 is not happy
 $9^2 + 8^2 + 0^2 + 0^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9800 is not happy
 $9^2 + 8^2 + 0^2 + 1^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$

$4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9801 is not happy
 $9^2 + 8^2 + 0^2 + 2^2 = 149$
 $1^2 + 4^2 + 9^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9802 is not happy
 $9^2 + 8^2 + 0^2 + 3^2 = 154$
 $1^2 + 5^2 + 4^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9803 is not happy
 $9^2 + 8^2 + 0^2 + 4^2 = 161$
 $1^2 + 6^2 + 1^2 = 38$
 $3^2 + 8^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9804 is not happy
 $9^2 + 8^2 + 0^2 + 5^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9805 is not happy

$$9^2 + 8^2 + 0^2 + 6^2 = 181$$

$$1^2 + 8^2 + 1^2 = 66$$

$$6^2 + 6^2 = 72$$

$$7^2 + 2^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9806 is not happy

$$9^2 + 8^2 + 0^2 + 7^2 = 194$$

$$1^2 + 9^2 + 4^2 = 98$$

$$9^2 + 8^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

The number 9807 is not happy

$$9^2 + 8^2 + 0^2 + 8^2 = 209$$

$$2^2 + 0^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9808 is not happy

$$9^2 + 8^2 + 0^2 + 9^2 = 226$$

$$2^2 + 2^2 + 6^2 = 44$$

$$4^2 + 4^2 = 32$$

$$3^2 + 2^2 = 13$$

$$1^2 + 3^2 = 10$$

$$1^2 + 0^2 = 1$$

The number 9809 is happy

$$9^2 + 8^2 + 1^2 + 0^2 = 146$$

$$1^2 + 4^2 + 6^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9810 is not happy
 $9^2 + 8^2 + 1^2 + 1^2 = 147$
 $1^2 + 4^2 + 7^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9811 is not happy
 $9^2 + 8^2 + 1^2 + 2^2 = 150$
 $1^2 + 5^2 + 0^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9812 is not happy
 $9^2 + 8^2 + 1^2 + 3^2 = 155$
 $1^2 + 5^2 + 5^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9813 is not happy
 $9^2 + 8^2 + 1^2 + 4^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$

$1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9814 is not happy
 $9^2 + 8^2 + 1^2 + 5^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9815 is not happy
 $9^2 + 8^2 + 1^2 + 6^2 = 182$
 $1^2 + 8^2 + 2^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9816 is not happy
 $9^2 + 8^2 + 1^2 + 7^2 = 195$
 $1^2 + 9^2 + 5^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9817 is not happy
 $9^2 + 8^2 + 1^2 + 8^2 = 210$
 $2^2 + 1^2 + 0^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9818 is not happy
 $9^2 + 8^2 + 1^2 + 9^2 = 227$
 $2^2 + 2^2 + 7^2 = 57$
 $5^2 + 7^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9819 is not happy
 $9^2 + 8^2 + 2^2 + 0^2 = 149$
 $1^2 + 4^2 + 9^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9820 is not happy
 $9^2 + 8^2 + 2^2 + 1^2 = 150$
 $1^2 + 5^2 + 0^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$

$4^2 = 16$
 The number 9821 is not happy
 $9^2 + 8^2 + 2^2 + 2^2 = 153$
 $1^2 + 5^2 + 3^2 = 35$
 $3^2 + 5^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9822 is not happy
 $9^2 + 8^2 + 2^2 + 3^2 = 158$
 $1^2 + 5^2 + 8^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9823 is not happy
 $9^2 + 8^2 + 2^2 + 4^2 = 165$
 $1^2 + 6^2 + 5^2 = 62$
 $6^2 + 2^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9824 is not happy
 $9^2 + 8^2 + 2^2 + 5^2 = 174$
 $1^2 + 7^2 + 4^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$

$4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9825 is not happy
 $9^2 + 8^2 + 2^2 + 6^2 = 185$
 $1^2 + 8^2 + 5^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9826 is not happy
 $9^2 + 8^2 + 2^2 + 7^2 = 198$
 $1^2 + 9^2 + 8^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9827 is not happy
 $9^2 + 8^2 + 2^2 + 8^2 = 213$
 $2^2 + 1^2 + 3^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9828 is not happy
 $9^2 + 8^2 + 2^2 + 9^2 = 230$

$$2^2 + 3^2 + 0^2 = 13$$

$$1^2 + 3^2 = 10$$

$$1^2 + 0^2 = 1$$

The number 9829 is happy

$$9^2 + 8^2 + 3^2 + 0^2 = 154$$

$$1^2 + 5^2 + 4^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

The number 9830 is not happy

$$9^2 + 8^2 + 3^2 + 1^2 = 155$$

$$1^2 + 5^2 + 5^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9831 is not happy

$$9^2 + 8^2 + 3^2 + 2^2 = 158$$

$$1^2 + 5^2 + 8^2 = 90$$

$$9^2 + 0^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9832 is not happy

$$9^2 + 8^2 + 3^2 + 3^2 = 163$$

$$1^2 + 6^2 + 3^2 = 46$$

$$4^2 + 6^2 = 52$$

$$5^2 + 2^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$5^2 + 8^2 = 89$
 The number 9833 is not happy
 $9^2 + 8^2 + 3^2 + 4^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9834 is not happy
 $9^2 + 8^2 + 3^2 + 5^2 = 179$
 $1^2 + 7^2 + 9^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9835 is not happy
 $9^2 + 8^2 + 3^2 + 6^2 = 190$
 $1^2 + 9^2 + 0^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9836 is happy
 $9^2 + 8^2 + 3^2 + 7^2 = 203$
 $2^2 + 0^2 + 3^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9837 is happy
 $9^2 + 8^2 + 3^2 + 8^2 = 218$
 $2^2 + 1^2 + 8^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$

The number 9838 is not happy

$$9^2 + 8^2 + 3^2 + 9^2 = 235$$

$$2^2 + 3^2 + 5^2 = 38$$

$$3^2 + 8^2 = 73$$

$$7^2 + 3^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

The number 9839 is not happy

$$9^2 + 8^2 + 4^2 + 0^2 = 161$$

$$1^2 + 6^2 + 1^2 = 38$$

$$3^2 + 8^2 = 73$$

$$7^2 + 3^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

The number 9840 is not happy

$$9^2 + 8^2 + 4^2 + 1^2 = 162$$

$$1^2 + 6^2 + 2^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9841 is not happy

$$9^2 + 8^2 + 4^2 + 2^2 = 165$$

$$1^2 + 6^2 + 5^2 = 62$$

$$6^2 + 2^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9842 is not happy

$$9^2 + 8^2 + 4^2 + 3^2 = 170$$

$$1^2 + 7^2 + 0^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9843 is not happy

$$9^2 + 8^2 + 4^2 + 4^2 = 177$$

$$1^2 + 7^2 + 7^2 = 99$$

$$9^2 + 9^2 = 162$$

$$1^2 + 6^2 + 2^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9844 is not happy

$$9^2 + 8^2 + 4^2 + 5^2 = 186$$

$$1^2 + 8^2 + 6^2 = 101$$

$$1^2 + 0^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9845 is not happy

$$9^2 + 8^2 + 4^2 + 6^2 = 197$$

$$1^2 + 9^2 + 7^2 = 131$$

$$1^2 + 3^2 + 1^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9846 is not happy
 $9^2 + 8^2 + 4^2 + 7^2 = 210$
 $2^2 + 1^2 + 0^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9847 is not happy
 $9^2 + 8^2 + 4^2 + 8^2 = 225$
 $2^2 + 2^2 + 5^2 = 33$
 $3^2 + 3^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9848 is not happy
 $9^2 + 8^2 + 4^2 + 9^2 = 242$
 $2^2 + 4^2 + 2^2 = 24$
 $2^2 + 4^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 The number 9849 is not happy
 $9^2 + 8^2 + 5^2 + 0^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$

$1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9850 is not happy
 $9^2 + 8^2 + 5^2 + 1^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9851 is not happy
 $9^2 + 8^2 + 5^2 + 2^2 = 174$
 $1^2 + 7^2 + 4^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9852 is not happy
 $9^2 + 8^2 + 5^2 + 3^2 = 179$
 $1^2 + 7^2 + 9^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9853 is not happy
 $9^2 + 8^2 + 5^2 + 4^2 = 186$
 $1^2 + 8^2 + 6^2 = 101$
 $1^2 + 0^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$

$5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9854 is not happy
 $9^2 + 8^2 + 5^2 + 5^2 = 195$
 $1^2 + 9^2 + 5^2 = 107$
 $1^2 + 0^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9855 is not happy
 $9^2 + 8^2 + 5^2 + 6^2 = 206$
 $2^2 + 0^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9856 is not happy
 $9^2 + 8^2 + 5^2 + 7^2 = 219$
 $2^2 + 1^2 + 9^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9857 is happy
 $9^2 + 8^2 + 5^2 + 8^2 = 234$
 $2^2 + 3^2 + 4^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9858 is not happy
 $9^2 + 8^2 + 5^2 + 9^2 = 251$
 $2^2 + 5^2 + 1^2 = 30$
 $3^2 + 0^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$

$6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9859 is not happy
 $9^2 + 8^2 + 6^2 + 0^2 = 181$
 $1^2 + 8^2 + 1^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9860 is not happy
 $9^2 + 8^2 + 6^2 + 1^2 = 182$
 $1^2 + 8^2 + 2^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9861 is not happy
 $9^2 + 8^2 + 6^2 + 2^2 = 185$
 $1^2 + 8^2 + 5^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$

$4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9862 is not happy
 $9^2 + 8^2 + 6^2 + 3^2 = 190$
 $1^2 + 9^2 + 0^2 = 82$
 $8^2 + 2^2 = 68$
 $6^2 + 8^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9863 is happy
 $9^2 + 8^2 + 6^2 + 4^2 = 197$
 $1^2 + 9^2 + 7^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9864 is not happy
 $9^2 + 8^2 + 6^2 + 5^2 = 206$
 $2^2 + 0^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9865 is not happy
 $9^2 + 8^2 + 6^2 + 6^2 = 217$
 $2^2 + 1^2 + 7^2 = 54$
 $5^2 + 4^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9866 is not happy
 $9^2 + 8^2 + 6^2 + 7^2 = 230$
 $2^2 + 3^2 + 0^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$

The number 9867 is happy

$$9^2 + 8^2 + 6^2 + 7^2 = 245$$

$$2^2 + 4^2 + 5^2 = 45$$

$$4^2 + 5^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9868 is not happy

$$9^2 + 8^2 + 6^2 + 8^2 = 262$$

$$2^2 + 6^2 + 2^2 = 44$$

$$4^2 + 4^2 = 32$$

$$3^2 + 2^2 = 13$$

$$1^2 + 3^2 = 10$$

$$1^2 + 0^2 = 1$$

The number 9869 is happy

$$9^2 + 8^2 + 7^2 + 0^2 = 194$$

$$1^2 + 9^2 + 4^2 = 98$$

$$9^2 + 8^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

The number 9870 is not happy

$$9^2 + 8^2 + 7^2 + 1^2 = 195$$

$$1^2 + 9^2 + 5^2 = 107$$

$$1^2 + 0^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9871 is not happy

$$9^2 + 8^2 + 7^2 + 2^2 = 198$$

$$1^2 + 9^2 + 8^2 = 146$$

$1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9872 is not happy
 $9^2 + 8^2 + 7^2 + 3^2 = 203$
 $2^2 + 0^2 + 3^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9873 is happy
 $9^2 + 8^2 + 7^2 + 4^2 = 210$
 $2^2 + 1^2 + 0^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9874 is not happy
 $9^2 + 8^2 + 7^2 + 5^2 = 219$
 $2^2 + 1^2 + 9^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9875 is happy
 $9^2 + 8^2 + 7^2 + 6^2 = 230$
 $2^2 + 3^2 + 0^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9876 is happy
 $9^2 + 8^2 + 7^2 + 7^2 = 243$
 $2^2 + 4^2 + 3^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$

The number 9877 is not happy

$$9^2 + 8^2 + 7^2 + 8^2 = 258$$

$$2^2 + 5^2 + 8^2 = 93$$

$$9^2 + 3^2 = 90$$

$$9^2 + 0^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9878 is not happy

$$9^2 + 8^2 + 7^2 + 9^2 = 275$$

$$2^2 + 7^2 + 5^2 = 78$$

$$7^2 + 8^2 = 113$$

$$1^2 + 1^2 + 3^2 = 11$$

$$1^2 + 1^2 = 2$$

$$2^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

The number 9879 is not happy

$$9^2 + 8^2 + 8^2 + 0^2 = 209$$

$$2^2 + 0^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9880 is not happy

$$9^2 + 8^2 + 8^2 + 1^2 = 210$$

$$2^2 + 1^2 + 0^2 = 5$$

$$5^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$5^2 + 8^2 = 89$
 The number 9881 is not happy
 $9^2 + 8^2 + 8^2 + 2^2 = 213$
 $2^2 + 1^2 + 3^2 = 14$
 $1^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9882 is not happy
 $9^2 + 8^2 + 8^2 + 3^2 = 218$
 $2^2 + 1^2 + 8^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9883 is not happy
 $9^2 + 8^2 + 8^2 + 4^2 = 225$
 $2^2 + 2^2 + 5^2 = 33$
 $3^2 + 3^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9884 is not happy
 $9^2 + 8^2 + 8^2 + 5^2 = 234$
 $2^2 + 3^2 + 4^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9885 is not happy
 $9^2 + 8^2 + 8^2 + 6^2 = 245$
 $2^2 + 4^2 + 5^2 = 45$
 $4^2 + 5^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9886 is not happy
 $9^2 + 8^2 + 8^2 + 7^2 = 258$
 $2^2 + 5^2 + 8^2 = 93$
 $9^2 + 3^2 = 90$
 $9^2 + 0^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9887 is not happy
 $9^2 + 8^2 + 8^2 + 8^2 = 273$
 $2^2 + 7^2 + 3^2 = 62$
 $6^2 + 2^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9888 is not happy
 $9^2 + 8^2 + 8^2 + 9^2 = 290$
 $2^2 + 9^2 + 0^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9889 is not happy
 $9^2 + 8^2 + 9^2 + 0^2 = 226$
 $2^2 + 2^2 + 6^2 = 44$
 $4^2 + 4^2 = 32$
 $3^2 + 2^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9890 is happy
 $9^2 + 8^2 + 9^2 + 1^2 = 227$
 $2^2 + 2^2 + 7^2 = 57$
 $5^2 + 7^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9891 is not happy
 $9^2 + 8^2 + 9^2 + 2^2 = 230$
 $2^2 + 3^2 + 0^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9892 is happy
 $9^2 + 8^2 + 9^2 + 3^2 = 235$
 $2^2 + 3^2 + 5^2 = 38$
 $3^2 + 8^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9893 is not happy
 $9^2 + 8^2 + 9^2 + 4^2 = 242$
 $2^2 + 4^2 + 2^2 = 24$
 $2^2 + 4^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 The number 9894 is not happy
 $9^2 + 8^2 + 9^2 + 5^2 = 251$
 $2^2 + 5^2 + 1^2 = 30$
 $3^2 + 0^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9895 is not happy
 $9^2 + 8^2 + 9^2 + 6^2 = 262$
 $2^2 + 6^2 + 2^2 = 44$
 $4^2 + 4^2 = 32$
 $3^2 + 2^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9896 is happy
 $9^2 + 8^2 + 9^2 + 7^2 = 275$
 $2^2 + 7^2 + 5^2 = 78$
 $7^2 + 8^2 = 113$
 $1^2 + 1^2 + 3^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9897 is not happy
 $9^2 + 8^2 + 9^2 + 8^2 = 290$
 $2^2 + 9^2 + 0^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9898 is not happy
 $9^2 + 8^2 + 9^2 + 9^2 = 307$
 $3^2 + 0^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$

$1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9899 is not happy
 $9^2 + 9^2 + 0^2 + 0^2 = 162$
 $1^2 + 6^2 + 2^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9900 is not happy
 $9^2 + 9^2 + 0^2 + 1^2 = 163$
 $1^2 + 6^2 + 3^2 = 46$
 $4^2 + 6^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9901 is not happy
 $9^2 + 9^2 + 0^2 + 2^2 = 166$
 $1^2 + 6^2 + 6^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9902 is not happy
 $9^2 + 9^2 + 0^2 + 3^2 = 171$
 $1^2 + 7^2 + 1^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9903 is not happy
 $9^2 + 9^2 + 0^2 + 4^2 = 178$
 $1^2 + 7^2 + 8^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9904 is not happy
 $9^2 + 9^2 + 0^2 + 5^2 = 187$
 $1^2 + 8^2 + 7^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9905 is not happy
 $9^2 + 9^2 + 0^2 + 6^2 = 198$
 $1^2 + 9^2 + 8^2 = 146$
 $1^2 + 4^2 + 6^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9906 is not happy
 $9^2 + 9^2 + 0^2 + 7^2 = 211$
 $2^2 + 1^2 + 1^2 = 6$

$6^2 = 36$
 $3^2 + 6^2 = 45$
 $4^2 + 5^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9907 is not happy
 $9^2 + 9^2 + 0^2 + 8^2 = 226$
 $2^2 + 2^2 + 6^2 = 44$
 $4^2 + 4^2 = 32$
 $3^2 + 2^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9908 is happy
 $9^2 + 9^2 + 0^2 + 9^2 = 243$
 $2^2 + 4^2 + 3^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9909 is not happy
 $9^2 + 9^2 + 1^2 + 0^2 = 163$
 $1^2 + 6^2 + 3^2 = 46$
 $4^2 + 6^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9910 is not happy
 $9^2 + 9^2 + 1^2 + 1^2 = 164$
 $1^2 + 6^2 + 4^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$

$2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9911 is not happy
 $9^2 + 9^2 + 1^2 + 2^2 = 167$
 $1^2 + 6^2 + 7^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9912 is happy
 $9^2 + 9^2 + 1^2 + 3^2 = 172$
 $1^2 + 7^2 + 2^2 = 54$
 $5^2 + 4^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9913 is not happy
 $9^2 + 9^2 + 1^2 + 4^2 = 179$
 $1^2 + 7^2 + 9^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9914 is not happy
 $9^2 + 9^2 + 1^2 + 5^2 = 188$
 $1^2 + 8^2 + 8^2 = 129$
 $1^2 + 2^2 + 9^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9915 is happy
 $9^2 + 9^2 + 1^2 + 6^2 = 199$
 $1^2 + 9^2 + 9^2 = 163$

$$1^2 + 6^2 + 3^2 = 46$$

$$4^2 + 6^2 = 52$$

$$5^2 + 2^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9916 is not happy

$$9^2 + 9^2 + 1^2 + 7^2 = 212$$

$$2^2 + 1^2 + 2^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9917 is not happy

$$9^2 + 9^2 + 1^2 + 8^2 = 227$$

$$2^2 + 2^2 + 7^2 = 57$$

$$5^2 + 7^2 = 74$$

$$7^2 + 4^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9918 is not happy

$$9^2 + 9^2 + 1^2 + 9^2 = 244$$

$$2^2 + 4^2 + 4^2 = 36$$

$$3^2 + 6^2 = 45$$

$$4^2 + 5^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9919 is not happy
 $9^2 + 9^2 + 2^2 + 0^2 = 166$
 $1^2 + 6^2 + 6^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9920 is not happy
 $9^2 + 9^2 + 2^2 + 1^2 = 167$
 $1^2 + 6^2 + 7^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9921 is happy
 $9^2 + 9^2 + 2^2 + 2^2 = 170$
 $1^2 + 7^2 + 0^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9922 is not happy
 $9^2 + 9^2 + 2^2 + 3^2 = 175$
 $1^2 + 7^2 + 5^2 = 75$
 $7^2 + 5^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9923 is not happy
 $9^2 + 9^2 + 2^2 + 4^2 = 182$
 $1^2 + 8^2 + 2^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$

$5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9924 is not happy
 $9^2 + 9^2 + 2^2 + 5^2 = 191$
 $1^2 + 9^2 + 1^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9925 is not happy
 $9^2 + 9^2 + 2^2 + 6^2 = 202$
 $2^2 + 0^2 + 2^2 = 8$
 $8^2 = 64$
 $6^2 + 4^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9926 is not happy
 $9^2 + 9^2 + 2^2 + 7^2 = 215$
 $2^2 + 1^2 + 5^2 = 30$
 $3^2 + 0^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9927 is not happy

$$9^2 + 9^2 + 2^2 + 8^2 = 230$$

$$2^2 + 3^2 + 0^2 = 13$$

$$1^2 + 3^2 = 10$$

$$1^2 + 0^2 = 1$$

The number 9928 is happy

$$9^2 + 9^2 + 2^2 + 9^2 = 247$$

$$2^2 + 4^2 + 7^2 = 69$$

$$6^2 + 9^2 = 117$$

$$1^2 + 1^2 + 7^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9929 is not happy

$$9^2 + 9^2 + 3^2 + 0^2 = 171$$

$$1^2 + 7^2 + 1^2 = 51$$

$$5^2 + 1^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9930 is not happy

$$9^2 + 9^2 + 3^2 + 1^2 = 172$$

$$1^2 + 7^2 + 2^2 = 54$$

$$5^2 + 4^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9931 is not happy

$$9^2 + 9^2 + 3^2 + 2^2 = 175$$

$$1^2 + 7^2 + 5^2 = 75$$

$$7^2 + 5^2 = 74$$

$$7^2 + 4^2 = 65$$

$6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9932 is not happy
 $9^2 + 9^2 + 3^2 + 3^2 = 180$
 $1^2 + 8^2 + 0^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9933 is not happy
 $9^2 + 9^2 + 3^2 + 4^2 = 187$
 $1^2 + 8^2 + 7^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9934 is not happy
 $9^2 + 9^2 + 3^2 + 5^2 = 196$
 $1^2 + 9^2 + 6^2 = 118$
 $1^2 + 1^2 + 8^2 = 66$
 $6^2 + 6^2 = 72$
 $7^2 + 2^2 = 53$
 $5^2 + 3^2 = 34$
 $3^2 + 4^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$

The number 9935 is not happy

$$9^2 + 9^2 + 3^2 + 6^2 = 207$$

$$2^2 + 0^2 + 7^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9936 is not happy

$$9^2 + 9^2 + 3^2 + 7^2 = 220$$

$$2^2 + 2^2 + 0^2 = 8$$

$$8^2 = 64$$

$$6^2 + 4^2 = 52$$

$$5^2 + 2^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9937 is not happy

$$9^2 + 9^2 + 3^2 + 8^2 = 235$$

$$2^2 + 3^2 + 5^2 = 38$$

$$3^2 + 8^2 = 73$$

$$7^2 + 3^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

The number 9938 is not happy

$$9^2 + 9^2 + 3^2 + 9^2 = 252$$

$$2^2 + 5^2 + 2^2 = 33$$

$$3^2 + 3^2 = 18$$

$$1^2 + 8^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9939 is not happy
 $9^2 + 9^2 + 4^2 + 0^2 = 178$
 $1^2 + 7^2 + 8^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9940 is not happy
 $9^2 + 9^2 + 4^2 + 1^2 = 179$
 $1^2 + 7^2 + 9^2 = 131$
 $1^2 + 3^2 + 1^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9941 is not happy
 $9^2 + 9^2 + 4^2 + 2^2 = 182$
 $1^2 + 8^2 + 2^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9942 is not happy
 $9^2 + 9^2 + 4^2 + 3^2 = 187$
 $1^2 + 8^2 + 7^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$

$8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9943 is not happy
 $9^2 + 9^2 + 4^2 + 4^2 = 194$
 $1^2 + 9^2 + 4^2 = 98$
 $9^2 + 8^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 The number 9944 is not happy
 $9^2 + 9^2 + 4^2 + 5^2 = 203$
 $2^2 + 0^2 + 3^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9945 is happy
 $9^2 + 9^2 + 4^2 + 6^2 = 214$
 $2^2 + 1^2 + 4^2 = 21$
 $2^2 + 1^2 = 5$
 $5^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9946 is not happy
 $9^2 + 9^2 + 4^2 + 7^2 = 227$
 $2^2 + 2^2 + 7^2 = 57$
 $5^2 + 7^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9947 is not happy
 $9^2 + 9^2 + 4^2 + 8^2 = 242$

$2^2 + 4^2 + 2^2 = 24$
 $2^2 + 4^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 The number 9948 is not happy
 $9^2 + 9^2 + 4^2 + 9^2 = 259$
 $2^2 + 5^2 + 9^2 = 110$
 $1^2 + 1^2 + 0^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9949 is not happy
 $9^2 + 9^2 + 5^2 + 0^2 = 187$
 $1^2 + 8^2 + 7^2 = 114$
 $1^2 + 1^2 + 4^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9950 is not happy
 $9^2 + 9^2 + 5^2 + 1^2 = 188$
 $1^2 + 8^2 + 8^2 = 129$
 $1^2 + 2^2 + 9^2 = 86$
 $8^2 + 6^2 = 100$
 $1^2 + 0^2 + 0^2 = 1$
 The number 9951 is happy
 $9^2 + 9^2 + 5^2 + 2^2 = 191$
 $1^2 + 9^2 + 1^2 = 83$
 $8^2 + 3^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$

The number 9952 is not happy

$$9^2 + 9^2 + 5^2 + 3^2 = 196$$

$$1^2 + 9^2 + 6^2 = 118$$

$$1^2 + 1^2 + 8^2 = 66$$

$$6^2 + 6^2 = 72$$

$$7^2 + 2^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9953 is not happy

$$9^2 + 9^2 + 5^2 + 4^2 = 203$$

$$2^2 + 0^2 + 3^2 = 13$$

$$1^2 + 3^2 = 10$$

$$1^2 + 0^2 = 1$$

The number 9954 is happy

$$9^2 + 9^2 + 5^2 + 5^2 = 212$$

$$2^2 + 1^2 + 2^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9955 is not happy

$$9^2 + 9^2 + 5^2 + 6^2 = 223$$

$$2^2 + 2^2 + 3^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9956 is not happy

$$9^2 + 9^2 + 5^2 + 7^2 = 236$$

$$2^2 + 3^2 + 6^2 = 49$$

$$4^2 + 9^2 = 97$$

$$9^2 + 7^2 = 130$$

$$1^2 + 3^2 + 0^2 = 10$$

$$1^2 + 0^2 = 1$$

The number 9957 is happy

$$9^2 + 9^2 + 5^2 + 8^2 = 251$$

$$2^2 + 5^2 + 1^2 = 30$$

$$3^2 + 0^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9958 is not happy

$$9^2 + 9^2 + 5^2 + 9^2 = 268$$

$$2^2 + 6^2 + 8^2 = 104$$

$$1^2 + 0^2 + 4^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9959 is not happy

$$9^2 + 9^2 + 6^2 + 0^2 = 198$$

$$1^2 + 9^2 + 8^2 = 146$$

$$1^2 + 4^2 + 6^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9960 is not happy

$$9^2 + 9^2 + 6^2 + 1^2 = 199$$

$$1^2 + 9^2 + 9^2 = 163$$

$$1^2 + 6^2 + 3^2 = 46$$

$$4^2 + 6^2 = 52$$

$$5^2 + 2^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9961 is not happy

$$9^2 + 9^2 + 6^2 + 2^2 = 202$$

$$2^2 + 0^2 + 2^2 = 8$$

$$8^2 = 64$$

$$6^2 + 4^2 = 52$$

$$5^2 + 2^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9962 is not happy

$$9^2 + 9^2 + 6^2 + 3^2 = 207$$

$$2^2 + 0^2 + 7^2 = 53$$

$$5^2 + 3^2 = 34$$

$$3^2 + 4^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9963 is not happy

$$9^2 + 9^2 + 6^2 + 4^2 = 214$$

$$2^2 + 1^2 + 4^2 = 21$$

$$2^2 + 1^2 = 5$$

$$5^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9964 is not happy
 $9^2 + 9^2 + 6^2 + 5^2 = 223$
 $2^2 + 2^2 + 3^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9965 is not happy
 $9^2 + 9^2 + 6^2 + 6^2 = 234$
 $2^2 + 3^2 + 4^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9966 is not happy
 $9^2 + 9^2 + 6^2 + 7^2 = 247$
 $2^2 + 4^2 + 7^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9967 is not happy
 $9^2 + 9^2 + 6^2 + 8^2 = 262$
 $2^2 + 6^2 + 2^2 = 44$
 $4^2 + 4^2 = 32$
 $3^2 + 2^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$

The number 9968 is happy

$$9^2 + 9^2 + 6^2 + 8^2 = 279$$

$$2^2 + 7^2 + 9^2 = 134$$

$$1^2 + 3^2 + 4^2 = 26$$

$$2^2 + 6^2 = 40$$

$$4^2 + 0^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

The number 9969 is not happy

$$9^2 + 9^2 + 7^2 + 0^2 = 211$$

$$2^2 + 1^2 + 1^2 = 6$$

$$6^2 = 36$$

$$3^2 + 6^2 = 45$$

$$4^2 + 5^2 = 41$$

$$4^2 + 1^2 = 17$$

$$1^2 + 7^2 = 50$$

$$5^2 + 0^2 = 25$$

$$2^2 + 5^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9970 is not happy

$$9^2 + 9^2 + 7^2 + 1^2 = 212$$

$$2^2 + 1^2 + 2^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

The number 9971 is not happy

$$9^2 + 9^2 + 7^2 + 2^2 = 215$$

$$2^2 + 1^2 + 5^2 = 30$$

$$3^2 + 0^2 = 9$$

$$9^2 = 81$$

$$8^2 + 1^2 = 65$$

$$6^2 + 5^2 = 61$$

$$6^2 + 1^2 = 37$$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9972 is not happy
 $9^2 + 9^2 + 7^2 + 3^2 = 220$
 $2^2 + 2^2 + 0^2 = 8$
 $8^2 = 64$
 $6^2 + 4^2 = 52$
 $5^2 + 2^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9973 is not happy
 $9^2 + 9^2 + 7^2 + 4^2 = 227$
 $2^2 + 2^2 + 7^2 = 57$
 $5^2 + 7^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9974 is not happy
 $9^2 + 9^2 + 7^2 + 5^2 = 236$
 $2^2 + 3^2 + 6^2 = 49$
 $4^2 + 9^2 = 97$
 $9^2 + 7^2 = 130$
 $1^2 + 3^2 + 0^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9975 is happy
 $9^2 + 9^2 + 7^2 + 6^2 = 247$
 $2^2 + 4^2 + 7^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$

$8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9976 is not happy
 $9^2 + 9^2 + 7^2 + 7^2 = 260$
 $2^2 + 6^2 + 0^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9977 is not happy
 $9^2 + 9^2 + 7^2 + 8^2 = 275$
 $2^2 + 7^2 + 5^2 = 78$
 $7^2 + 8^2 = 113$
 $1^2 + 1^2 + 3^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9978 is not happy
 $9^2 + 9^2 + 7^2 + 9^2 = 292$
 $2^2 + 9^2 + 2^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9979 is not happy
 $9^2 + 9^2 + 8^2 + 0^2 = 226$
 $2^2 + 2^2 + 6^2 = 44$
 $4^2 + 4^2 = 32$
 $3^2 + 2^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9980 is happy
 $9^2 + 9^2 + 8^2 + 1^2 = 227$
 $2^2 + 2^2 + 7^2 = 57$
 $5^2 + 7^2 = 74$
 $7^2 + 4^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$

$3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9981 is not happy
 $9^2 + 9^2 + 8^2 + 2^2 = 230$
 $2^2 + 3^2 + 0^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9982 is happy
 $9^2 + 9^2 + 8^2 + 3^2 = 235$
 $2^2 + 3^2 + 5^2 = 38$
 $3^2 + 8^2 = 73$
 $7^2 + 3^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9983 is not happy
 $9^2 + 9^2 + 8^2 + 4^2 = 242$
 $2^2 + 4^2 + 2^2 = 24$
 $2^2 + 4^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 The number 9984 is not happy
 $9^2 + 9^2 + 8^2 + 5^2 = 251$
 $2^2 + 5^2 + 1^2 = 30$
 $3^2 + 0^2 = 9$
 $9^2 = 81$
 $8^2 + 1^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9985 is not happy
 $9^2 + 9^2 + 8^2 + 6^2 = 262$
 $2^2 + 6^2 + 2^2 = 44$

$4^2 + 4^2 = 32$
 $3^2 + 2^2 = 13$
 $1^2 + 3^2 = 10$
 $1^2 + 0^2 = 1$
 The number 9986 is happy
 $9^2 + 9^2 + 8^2 + 7^2 = 275$
 $2^2 + 7^2 + 5^2 = 78$
 $7^2 + 8^2 = 113$
 $1^2 + 1^2 + 3^2 = 11$
 $1^2 + 1^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9987 is not happy
 $9^2 + 9^2 + 8^2 + 8^2 = 290$
 $2^2 + 9^2 + 0^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9988 is not happy
 $9^2 + 9^2 + 8^2 + 9^2 = 307$
 $3^2 + 0^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 The number 9989 is not happy
 $9^2 + 9^2 + 9^2 + 0^2 = 243$
 $2^2 + 4^2 + 3^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9990 is not happy
 $9^2 + 9^2 + 9^2 + 1^2 = 244$

$2^2 + 4^2 + 4^2 = 36$
 $3^2 + 6^2 = 45$
 $4^2 + 5^2 = 41$
 $4^2 + 1^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9991 is not happy
 $9^2 + 9^2 + 9^2 + 2^2 = 247$
 $2^2 + 4^2 + 7^2 = 69$
 $6^2 + 9^2 = 117$
 $1^2 + 1^2 + 7^2 = 51$
 $5^2 + 1^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9992 is not happy
 $9^2 + 9^2 + 9^2 + 3^2 = 252$
 $2^2 + 5^2 + 2^2 = 33$
 $3^2 + 3^2 = 18$
 $1^2 + 8^2 = 65$
 $6^2 + 5^2 = 61$
 $6^2 + 1^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 The number 9993 is not happy
 $9^2 + 9^2 + 9^2 + 4^2 = 259$
 $2^2 + 5^2 + 9^2 = 110$
 $1^2 + 1^2 + 0^2 = 2$
 $2^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$

$8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 The number 9994 is not happy
 $9^2 + 9^2 + 9^2 + 5^2 = 268$
 $2^2 + 6^2 + 8^2 = 104$
 $1^2 + 0^2 + 4^2 = 17$
 $1^2 + 7^2 = 50$
 $5^2 + 0^2 = 25$
 $2^2 + 5^2 = 29$
 $2^2 + 9^2 = 85$
 $8^2 + 5^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9995 is not happy
 $9^2 + 9^2 + 9^2 + 6^2 = 279$
 $2^2 + 7^2 + 9^2 = 134$
 $1^2 + 3^2 + 4^2 = 26$
 $2^2 + 6^2 = 40$
 $4^2 + 0^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 The number 9996 is not happy
 $9^2 + 9^2 + 9^2 + 7^2 = 292$
 $2^2 + 9^2 + 2^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 The number 9997 is not happy
 $9^2 + 9^2 + 9^2 + 8^2 = 307$
 $3^2 + 0^2 + 7^2 = 58$
 $5^2 + 8^2 = 89$
 $8^2 + 9^2 = 145$
 $1^2 + 4^2 + 5^2 = 42$
 $4^2 + 2^2 = 20$
 $2^2 + 0^2 = 4$
 $4^2 = 16$
 $1^2 + 6^2 = 37$
 $3^2 + 7^2 = 58$

The number 9998 is not happy

$$9^2 + 9^2 + 9^2 + 9^2 = 324$$

$$3^2 + 2^2 + 4^2 = 29$$

$$2^2 + 9^2 = 85$$

$$8^2 + 5^2 = 89$$

$$8^2 + 9^2 = 145$$

$$1^2 + 4^2 + 5^2 = 42$$

$$4^2 + 2^2 = 20$$

$$2^2 + 0^2 = 4$$

$$4^2 = 16$$

$$1^2 + 6^2 = 37$$

$$3^2 + 7^2 = 58$$

$$5^2 + 8^2 = 89$$

The number 9999 is not happy

$$1^2 + 0^2 + 0^2 + 0^2 + 0^2 = 1$$

$$1^2 = 1$$

The number 10000 is happy