Junior Certificate School Programme

# Flow Sums

Student Workbook 1

An Roinn Oideachais agus Scileanna
Department of Education and Skills

PDST
Professional Development Service for Teachers | An tSeirbhís um Fhorbairt Ghairmiúil do Mhúinteoirí

Junior Certificate School Programme

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Written by Jerry McCarthy and Denise O'Flanagan

# Introduction

**"Flow Sums, Student Workbook 1" contains a suite of thirty arithmetical challenges. In each "Flow Sum", the student is provided with a gateway number and he / she has to work his / her way through the maze of arrows, following the directions and computational instructions that are provided along the way, to discover the missing answer at the end of the maze.**

**Each "Flow Sum" activity can be planned and implemented as a timed-activity where each participating student is given 40 seconds to complete the challenge. This time frame can be extended or reduced to cater for the ability level and work-rate of the individual student.**

**These number challenges can be planned and implemented to incorporate a combination of mental activity and written activity. Alternatively, the challenges can be organised as activities involving the use of a calculator. A shorter time-frame may be allocated to a student who employs a calculator to perform all the calculations.**

**These timed number challenges are based on the following numerical concepts, skills and competencies:**

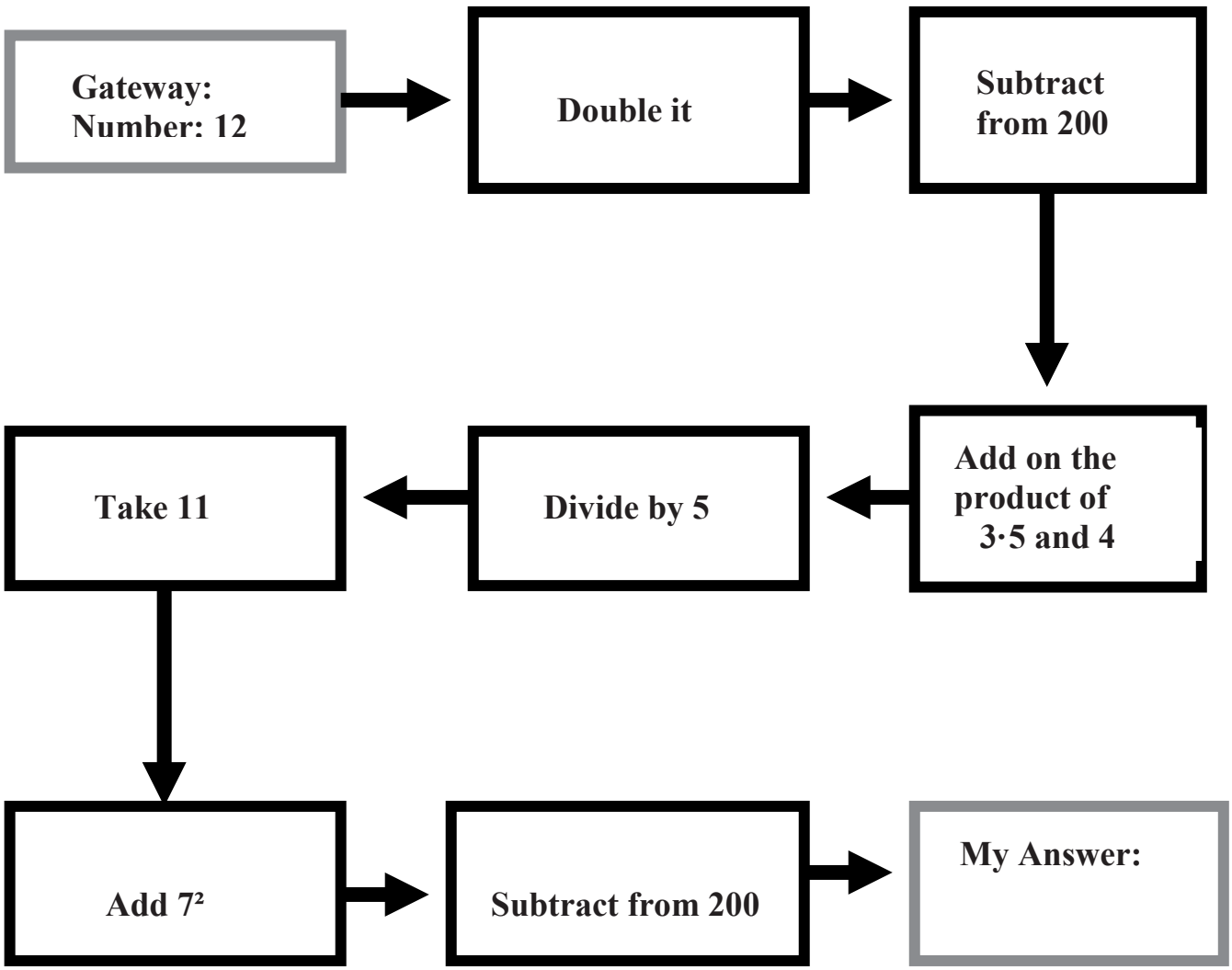
- **whole number computation (addition, subtraction, multiplication, division)**
- **computation involving fractions**
- **computation involving decimals**
- **computation involving percentages.**

**"Flow Sums" are an exciting way to revise, practise and consolidate important computational skills and to enhance numerical understanding in important conceptual domains.**

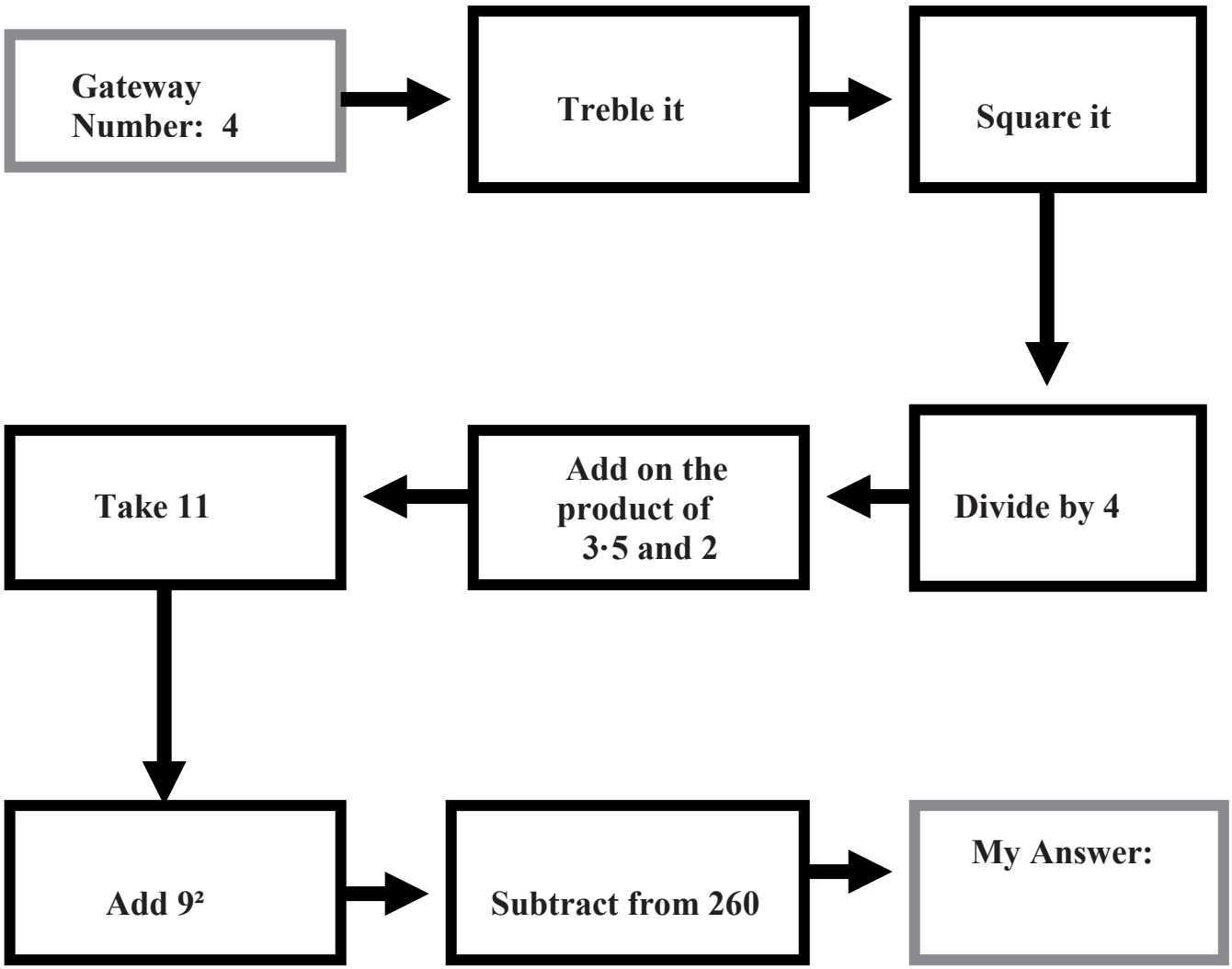
**Each "Flow Sum" challenge can be implemented as an individual activity, where each student works independently. The number challenges can also be operated as collaborative assignments where two (or more) students work together to solve the puzzles.**

**Solutions to these number flow charts are provided in the appendix section (page 34).**

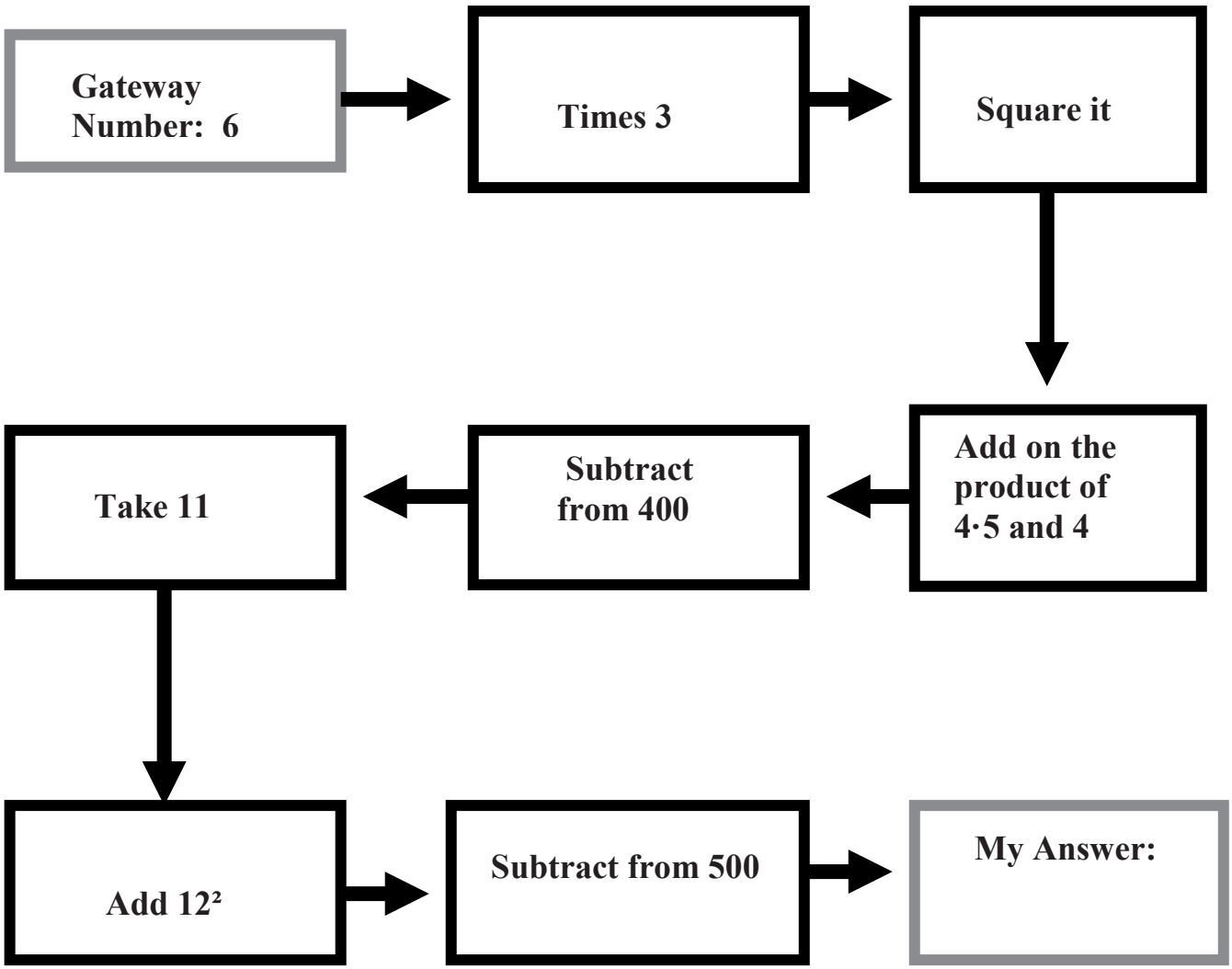
# Q 1


Gateway:
Number: 12
Double it
Subtract
from 200
Add on the
product of
3·5 and 4
Divide by 5
Take 11
Add 7²
Subtract from 200
My Answer:

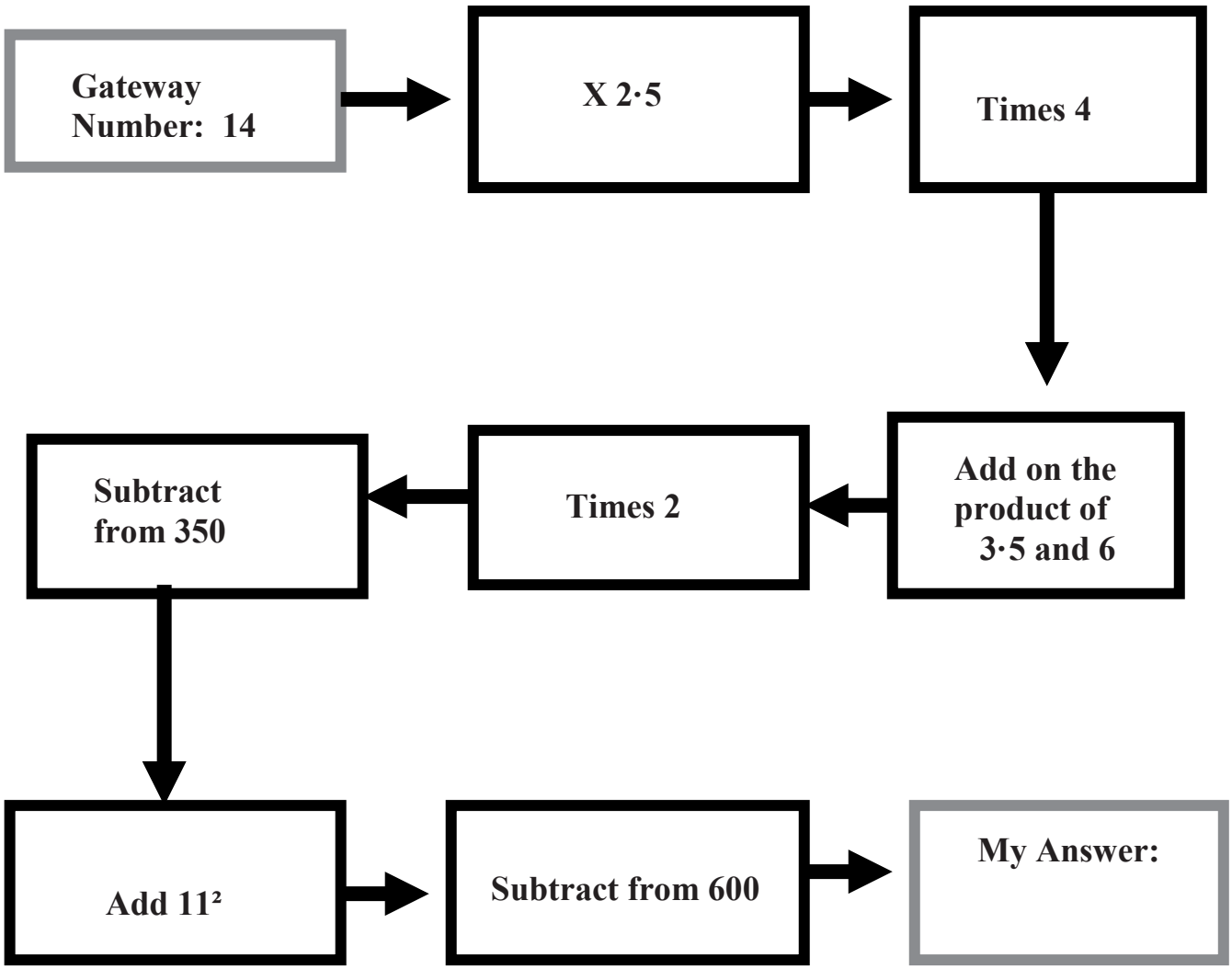
# Q 2


Gateway Number: 4
Treble it
Square it
Divide by 4
Add on the product of 3·5 and 2
Take 11
Add $9^2$
Subtract from 260
My Answer:

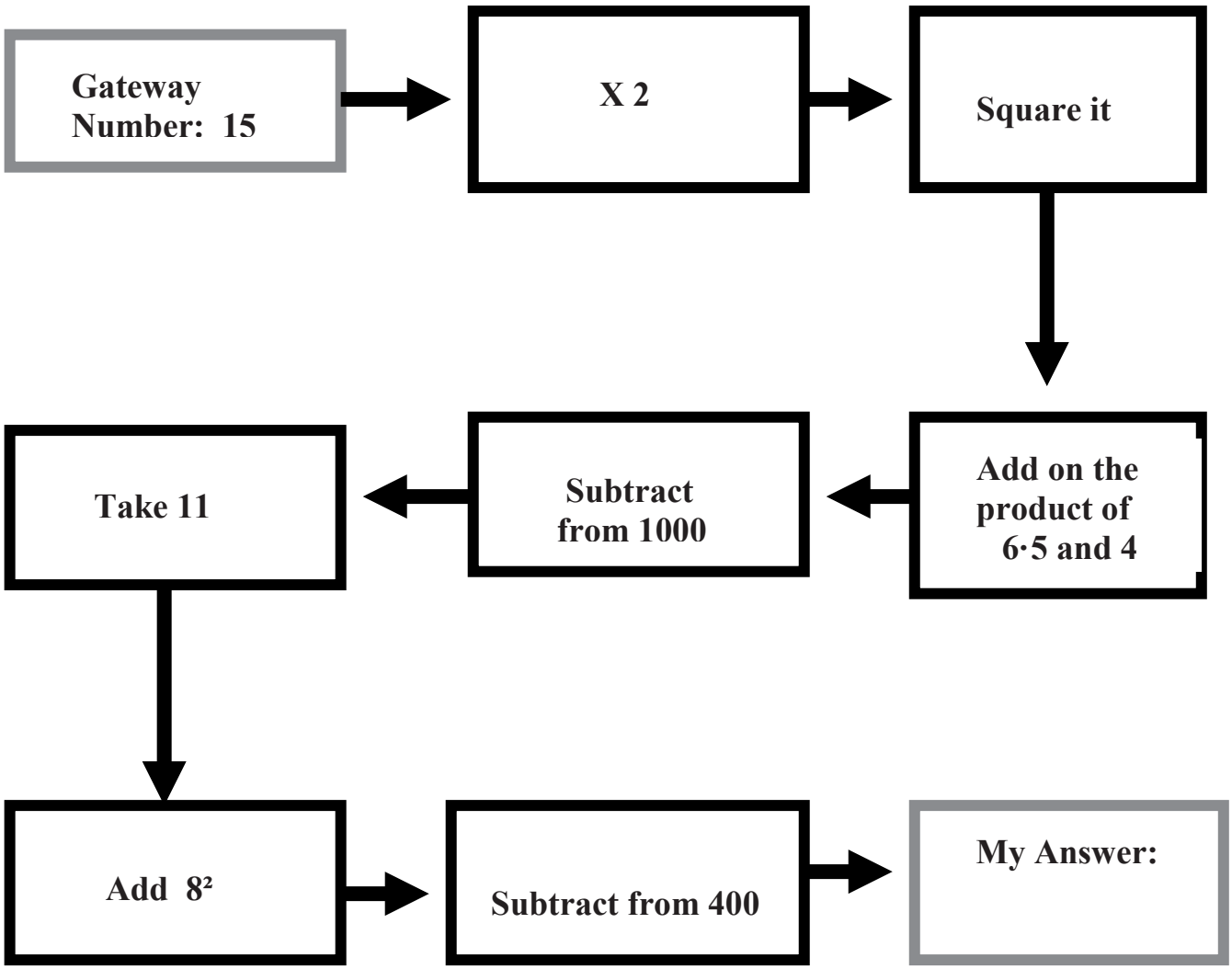
# Q 3


Gateway Number: 6
Times 3
Square it
Add on the product of 4·5 and 4
Subtract from 400
Take 11
Add 12²
Subtract from 500
My Answer:

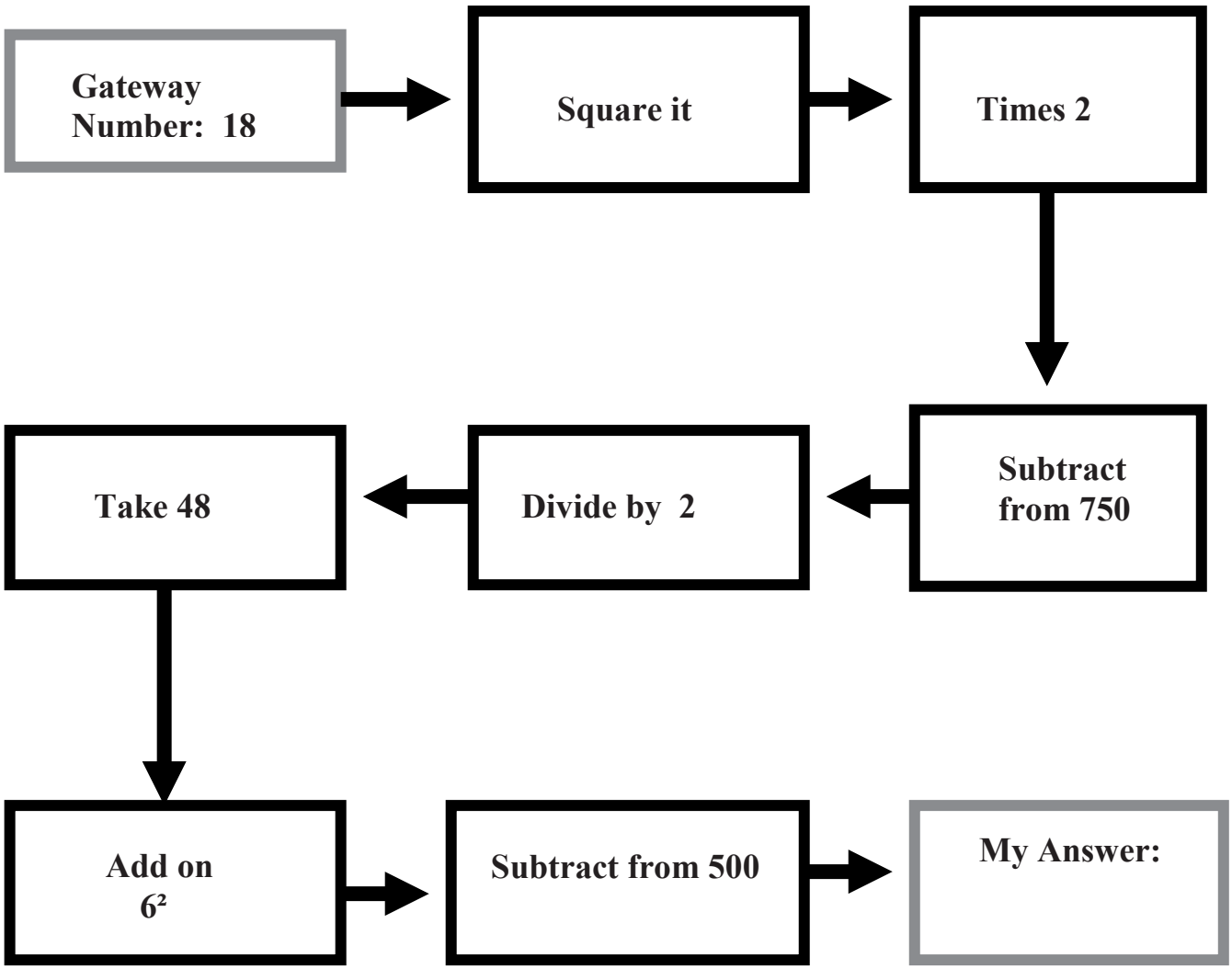
# Q 4


Gateway Number: 14
X 2·5
Times 4
Add on the product of 3·5 and 6
Times 2
Subtract from 350
Add $11^2$
Subtract from 600
My Answer:

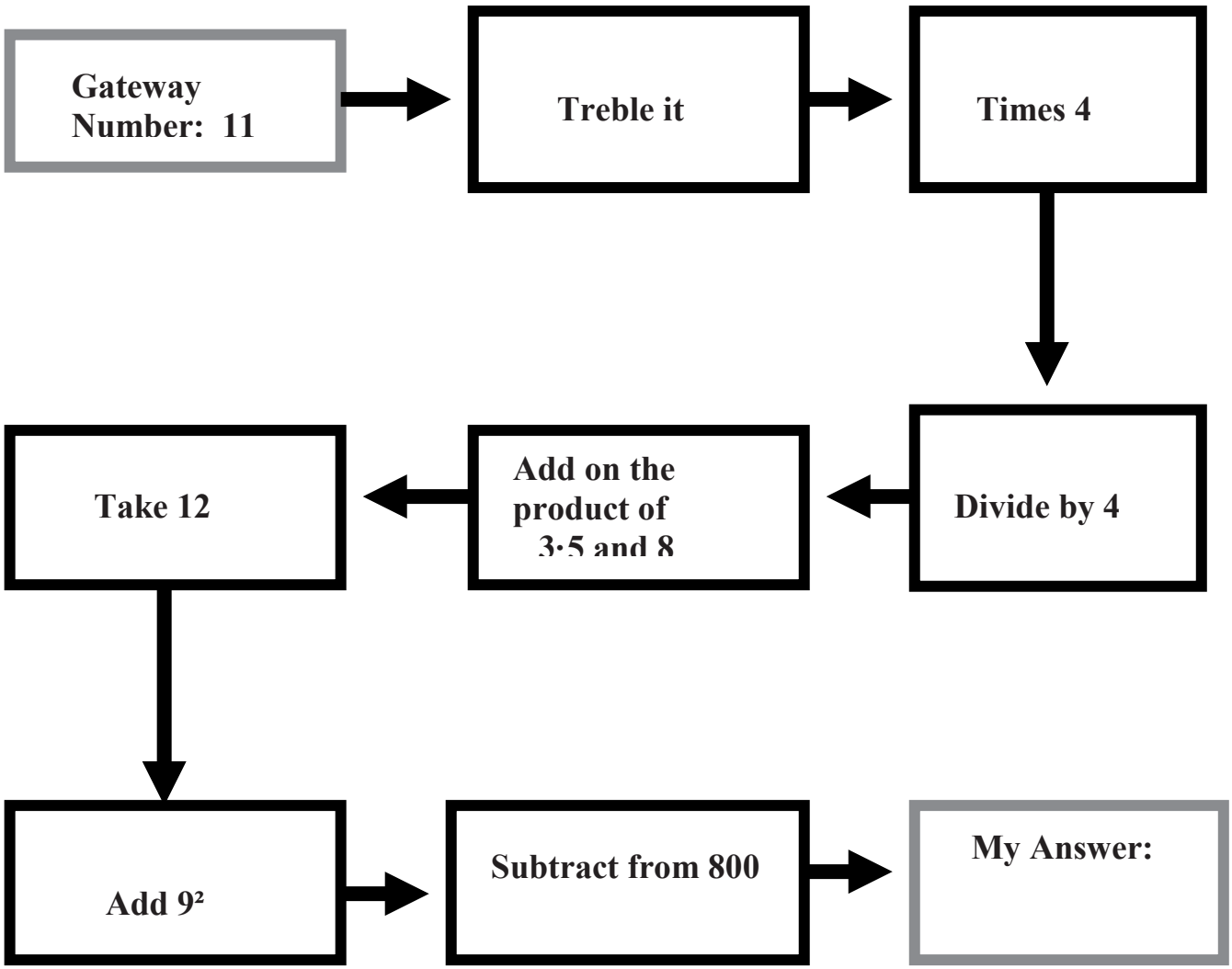
# Q 5


Gateway
Number: 15
X 2
Square it
Add on the
product of
6·5 and 4
Subtract
from 1000
Take 11
Add 8²
Subtract from 400
My Answer:

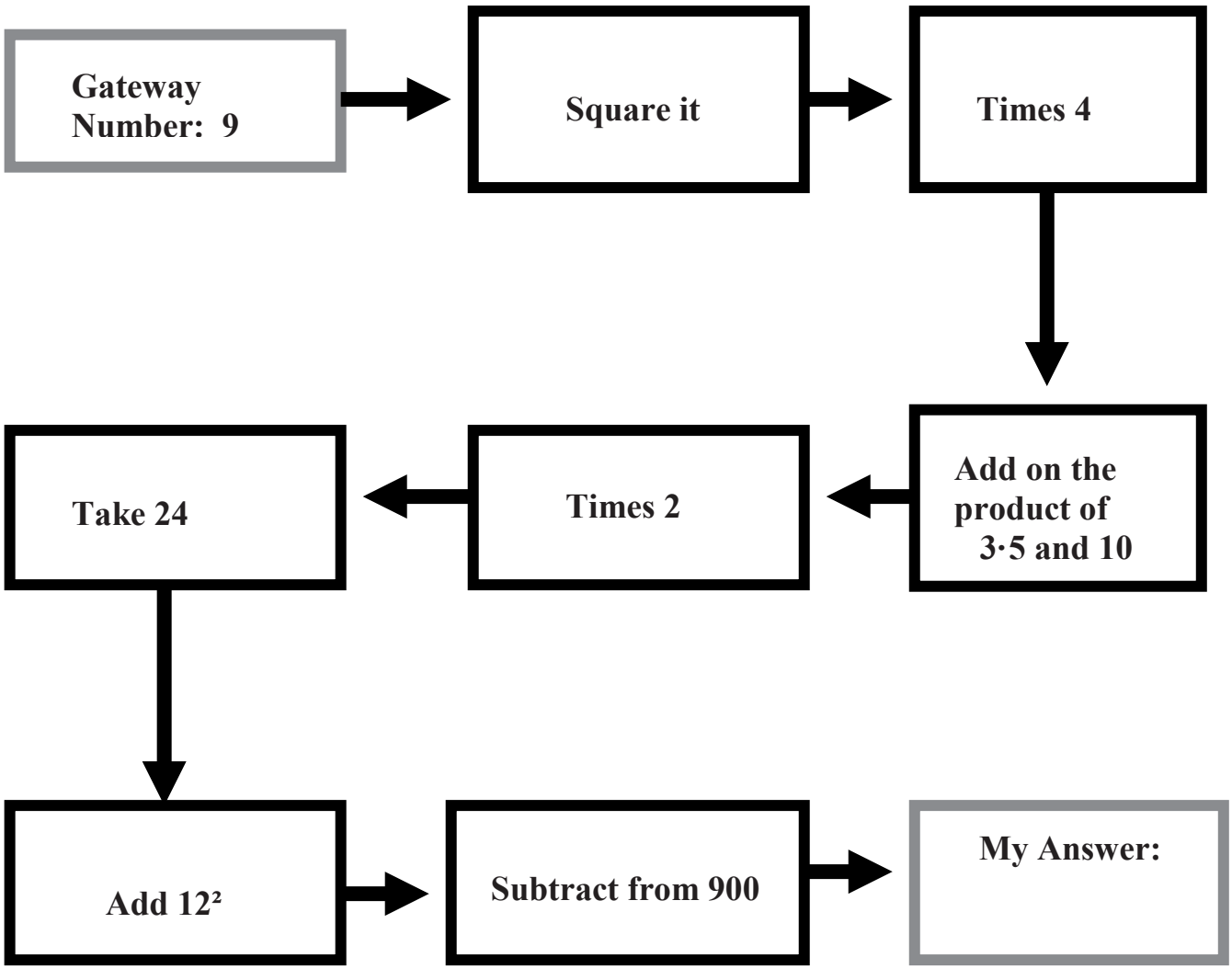
# Q 6


Gateway Number: 18
Square it
Times 2
Subtract from 750
Divide by 2
Take 48
Add on $6^2$
Subtract from 500
My Answer:

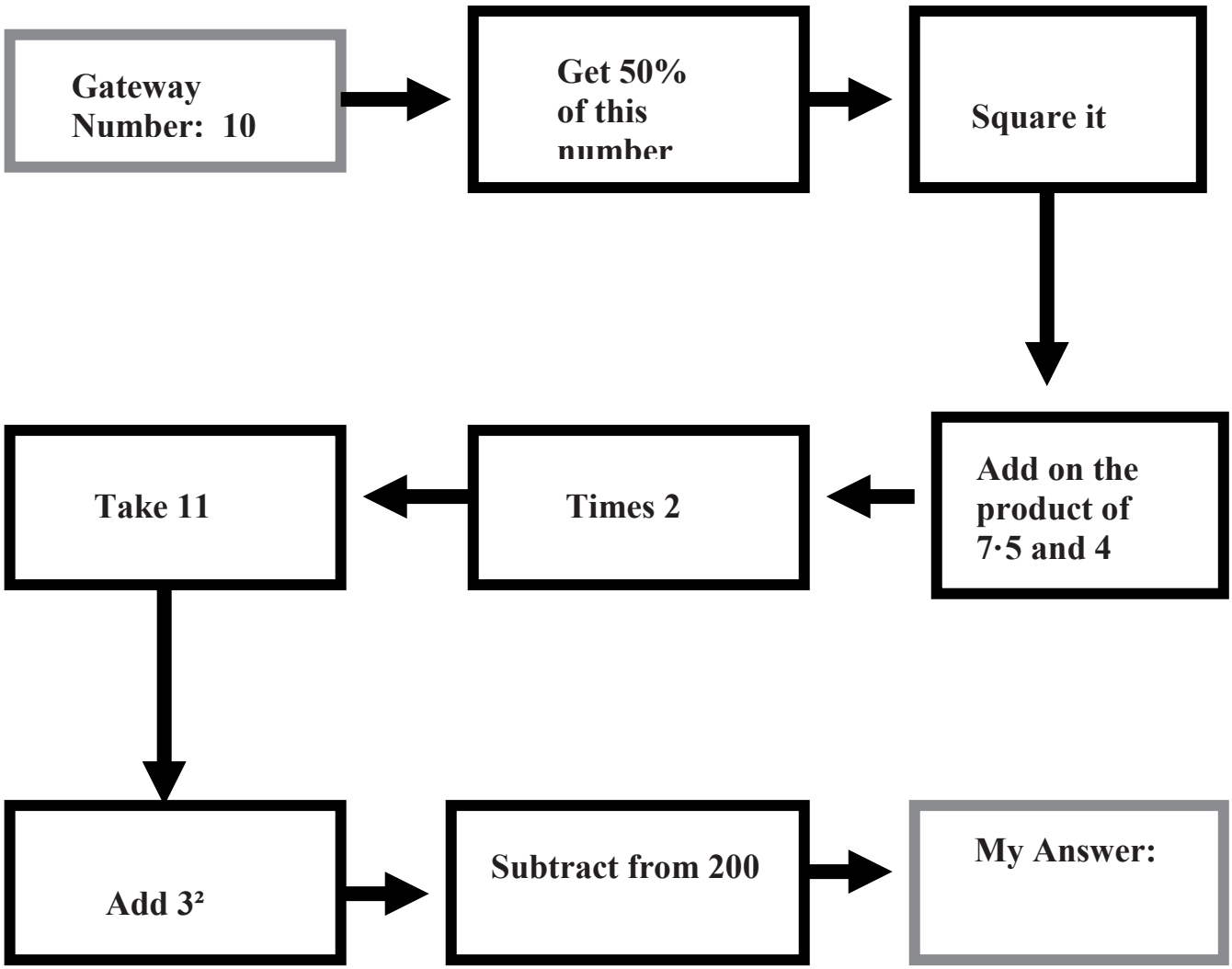
# Q 7


Gateway Number: 11
Treble it
Times 4
Divide by 4
Add on the product of 3·5 and 8
Take 12
Add $9^2$
Subtract from 800
My Answer:

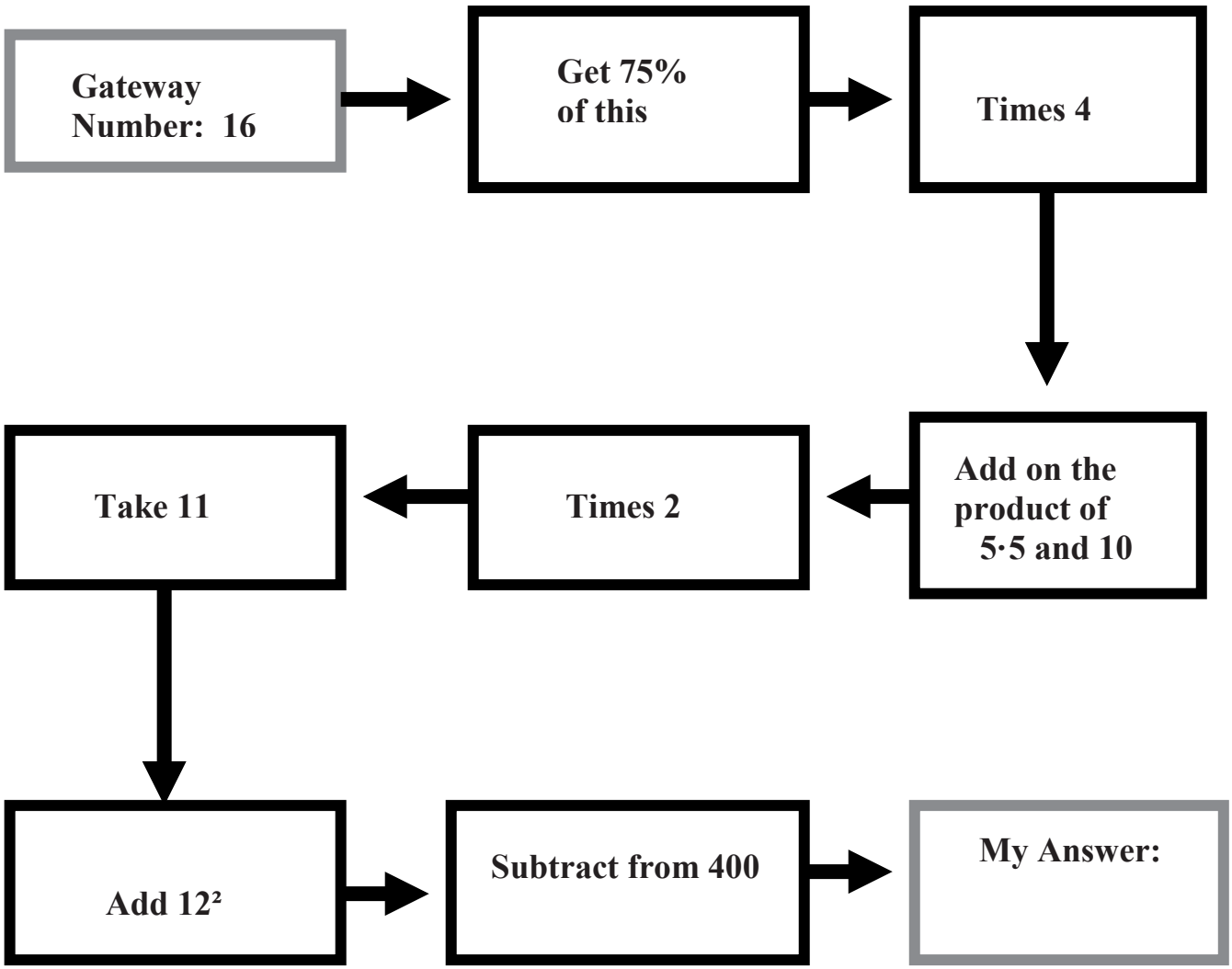
# Q 8


Gateway Number: 9
Square it
Times 4
Add on the product of 3·5 and 10
Times 2
Take 24
Add $12^2$
Subtract from 900
My Answer:

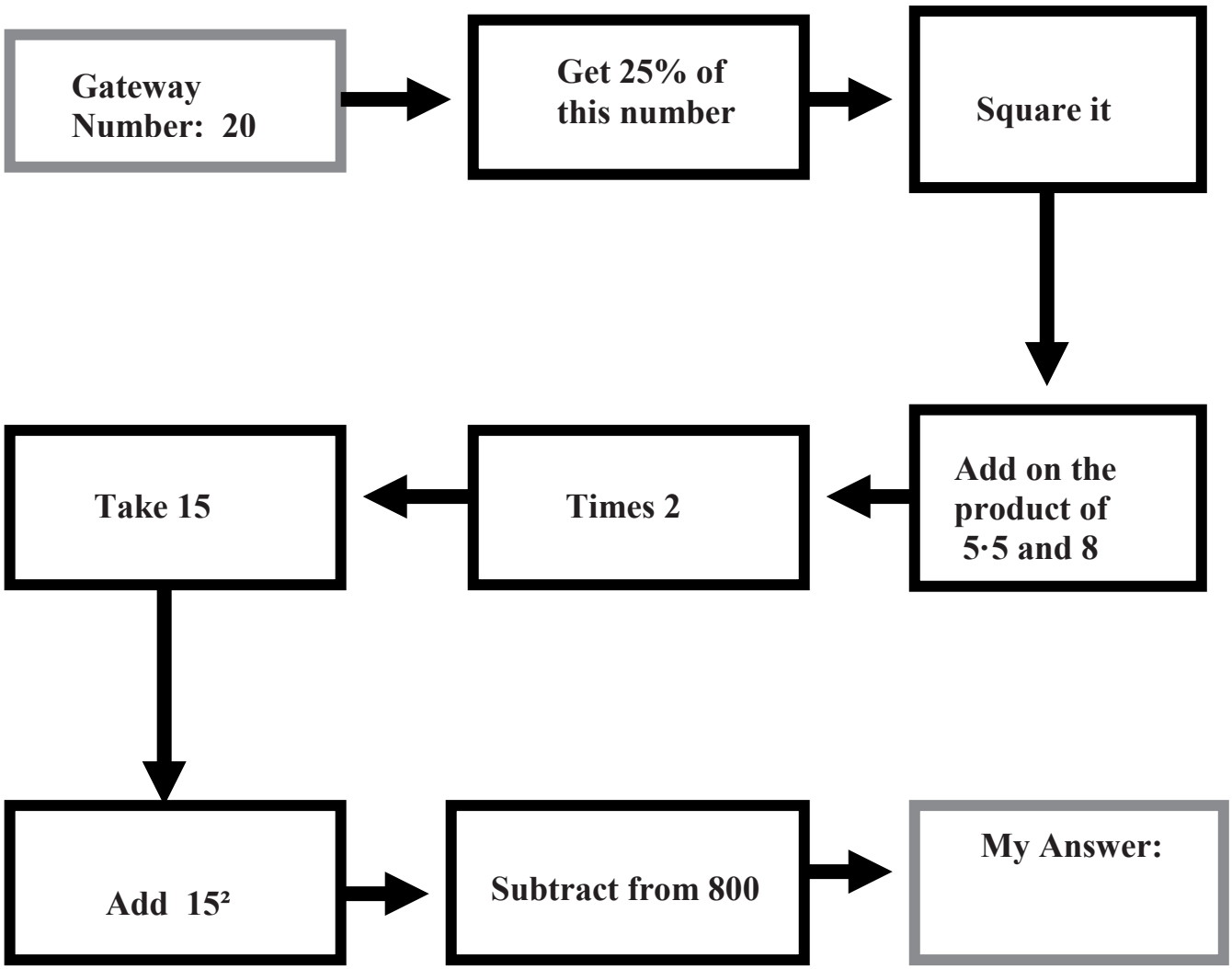
# Q 9


Gateway Number: 10
Get 50% of this number
Square it
Add on the product of 7·5 and 4
Times 2
Take 11
Add $3^2$
Subtract from 200
My Answer:

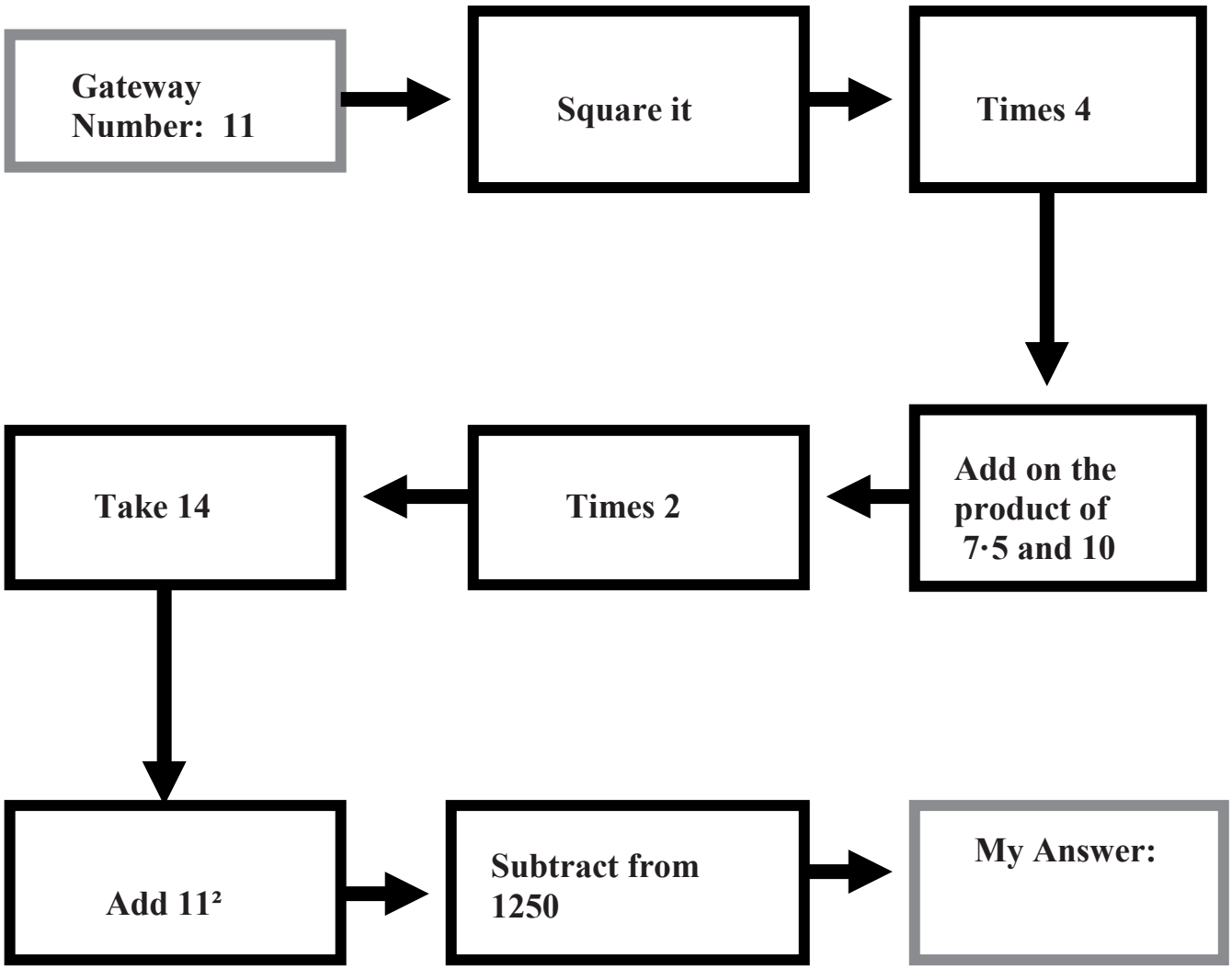
# Q 10


Gateway Number: 16
Get 75% of this
Times 4
Add on the product of 5·5 and 10
Times 2
Take 11
Add $12^2$
Subtract from 400
My Answer:

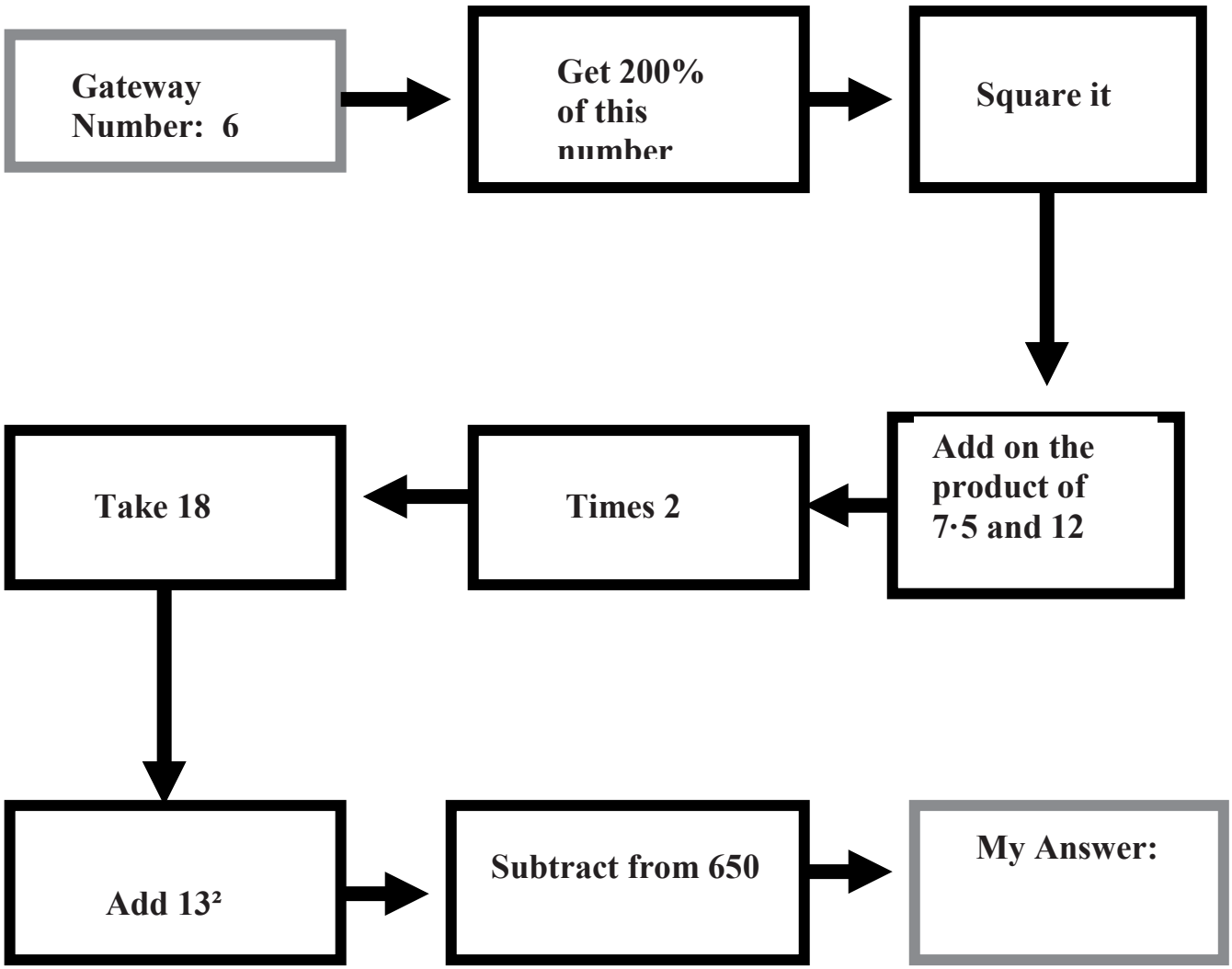
# Q 11


Gateway Number: 20
Get 25% of this number
Square it
Add on the product of 5·5 and 8
Times 2
Take 15
Add $15^2$
Subtract from 800
My Answer:

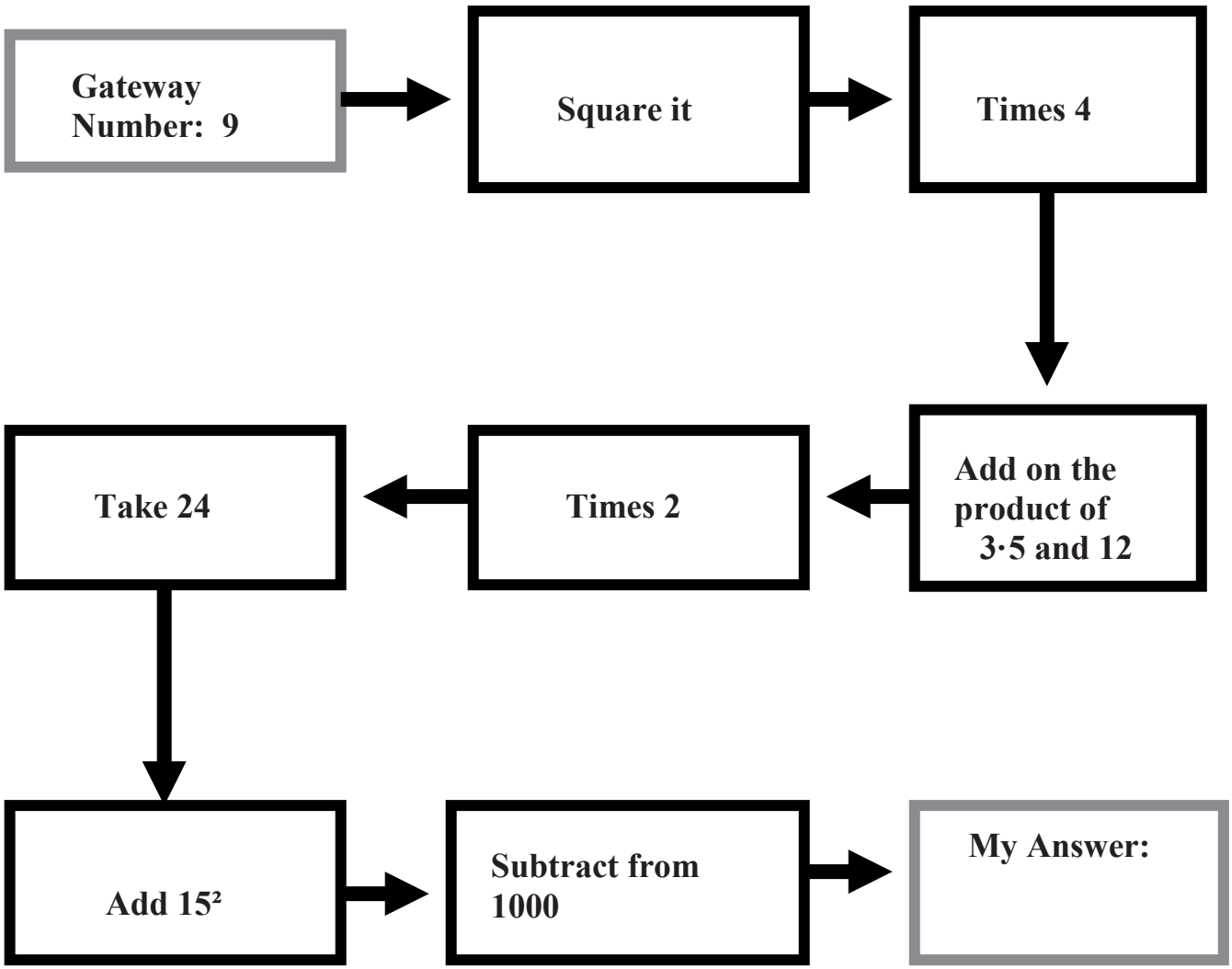
# Q 12


Gateway Number: 11
Square it
Times 4
Add on the product of 7·5 and 10
Times 2
Take 14
Add $11^2$
Subtract from 1250
My Answer:

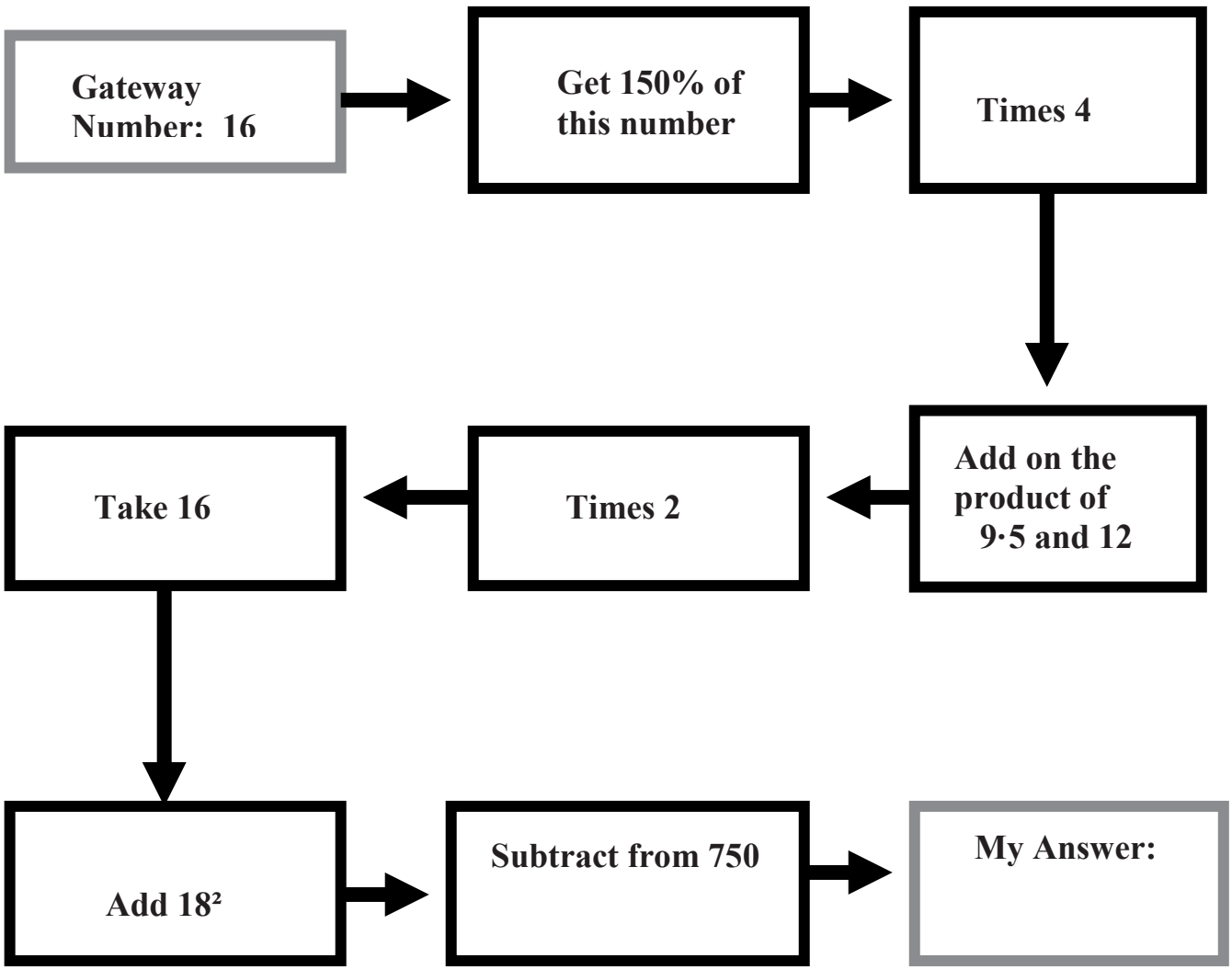
# Q 13


Gateway Number: 6
Get 200% of this number
Square it
Add on the product of 7·5 and 12
Times 2
Take 18
Add $13^2$
Subtract from 650
My Answer:

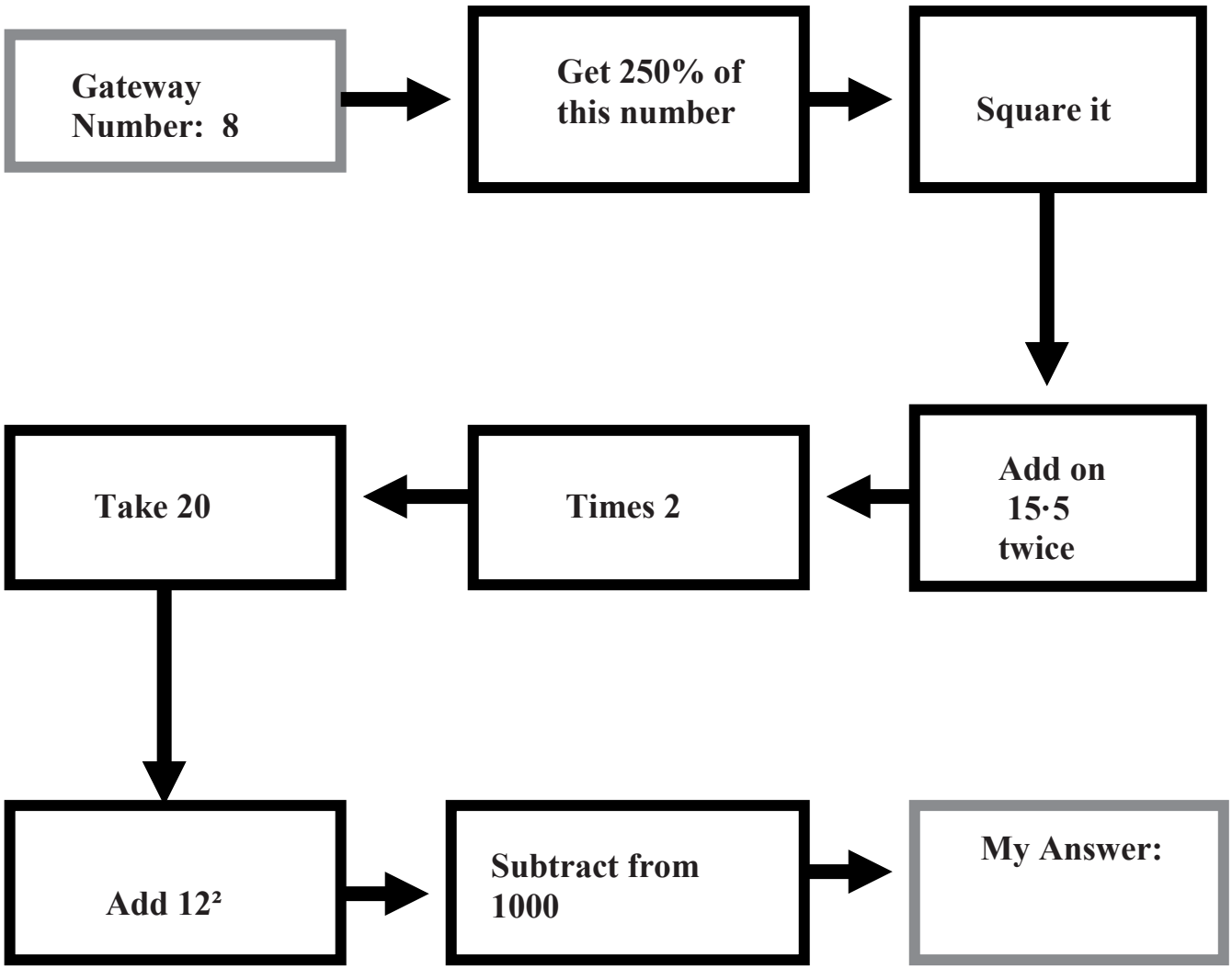
# Q 14


Gateway Number: 9
Square it
Times 4
Add on the product of 3·5 and 12
Times 2
Take 24
Add $15^2$
Subtract from 1000
My Answer:

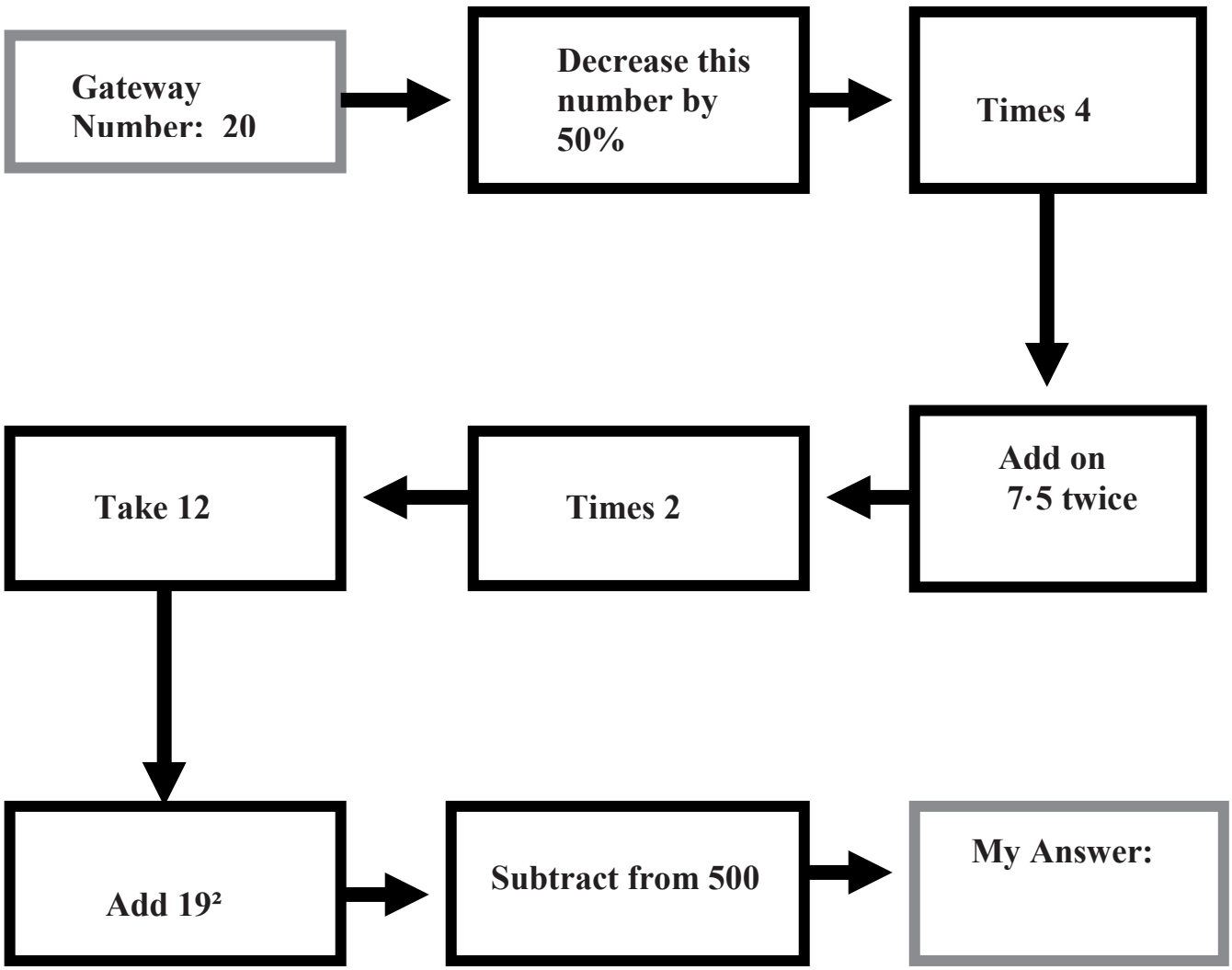
# Q 15


Gateway Number: 16
Get 150% of this number
Times 4
Add on the product of 9·5 and 12
Times 2
Take 16
Add $18^2$
Subtract from 750
My Answer:

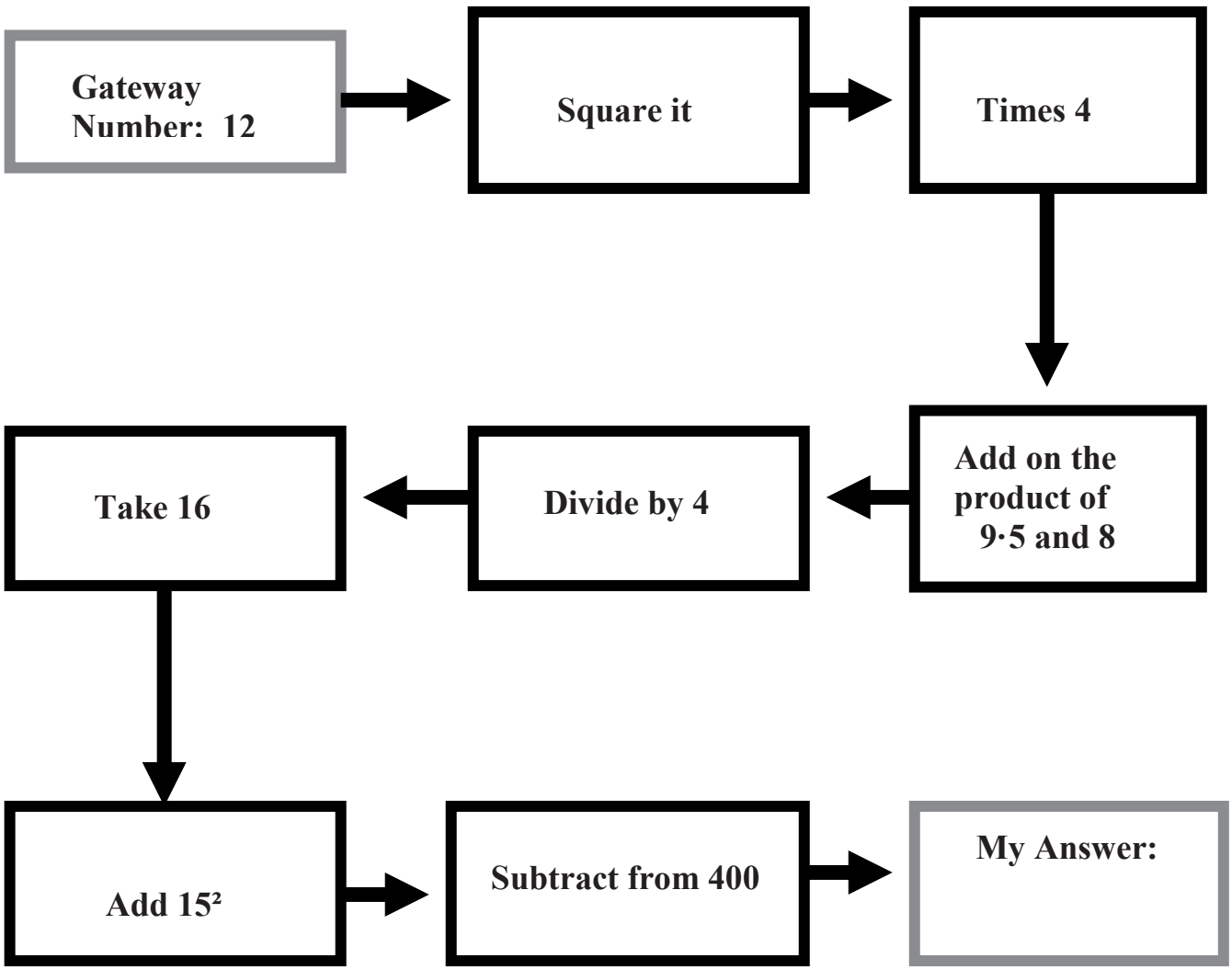
# Q 16


Gateway Number: 8
Get 250% of this number
Square it
Add on 15·5 twice
Times 2
Take 20
Add $12^2$
Subtract from 1000
My Answer:

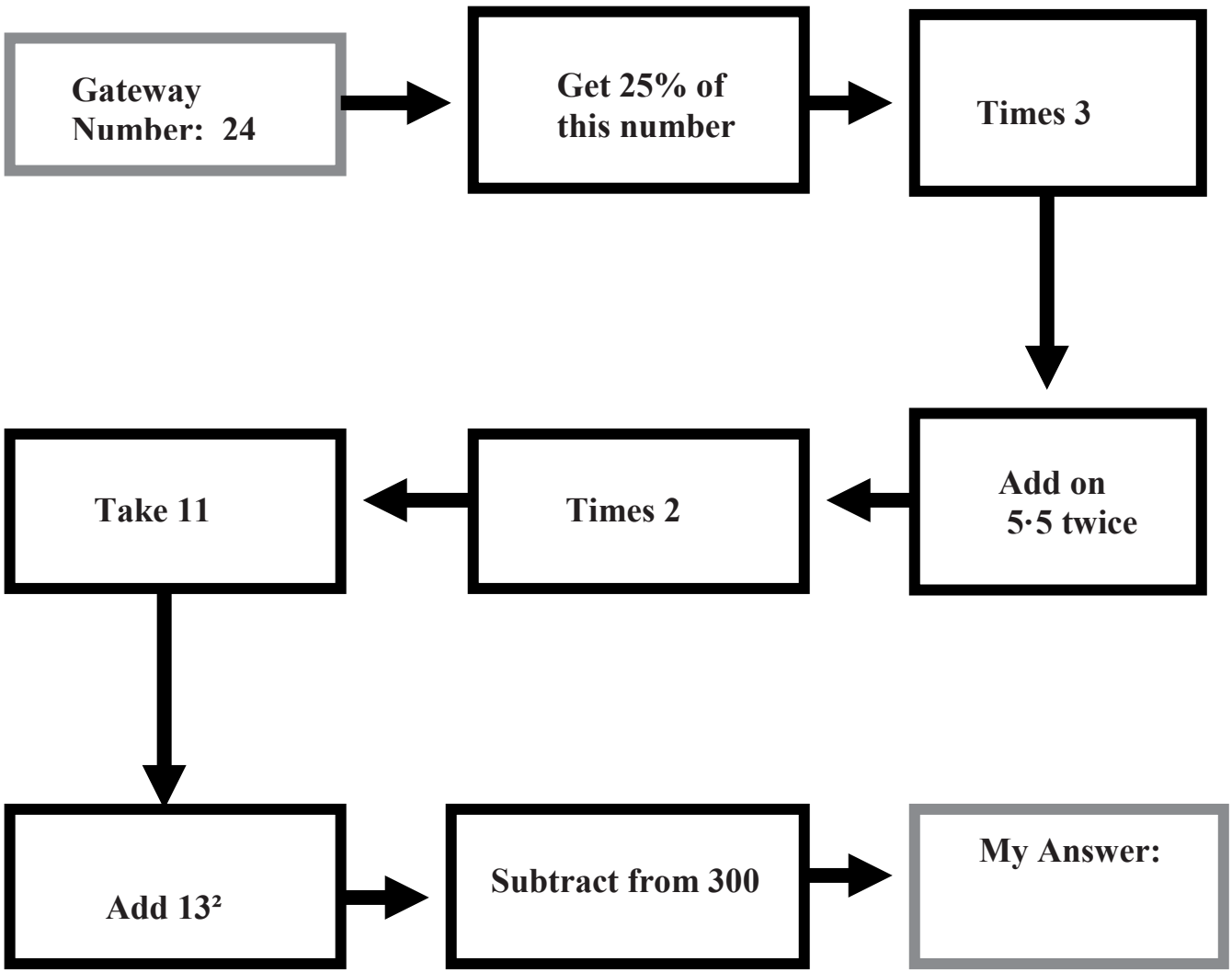
# Q 17


Gateway Number: 20
Decrease this number by 50%
Times 4
Add on 7·5 twice
Times 2
Take 12
Add $19^2$
Subtract from 500
My Answer:

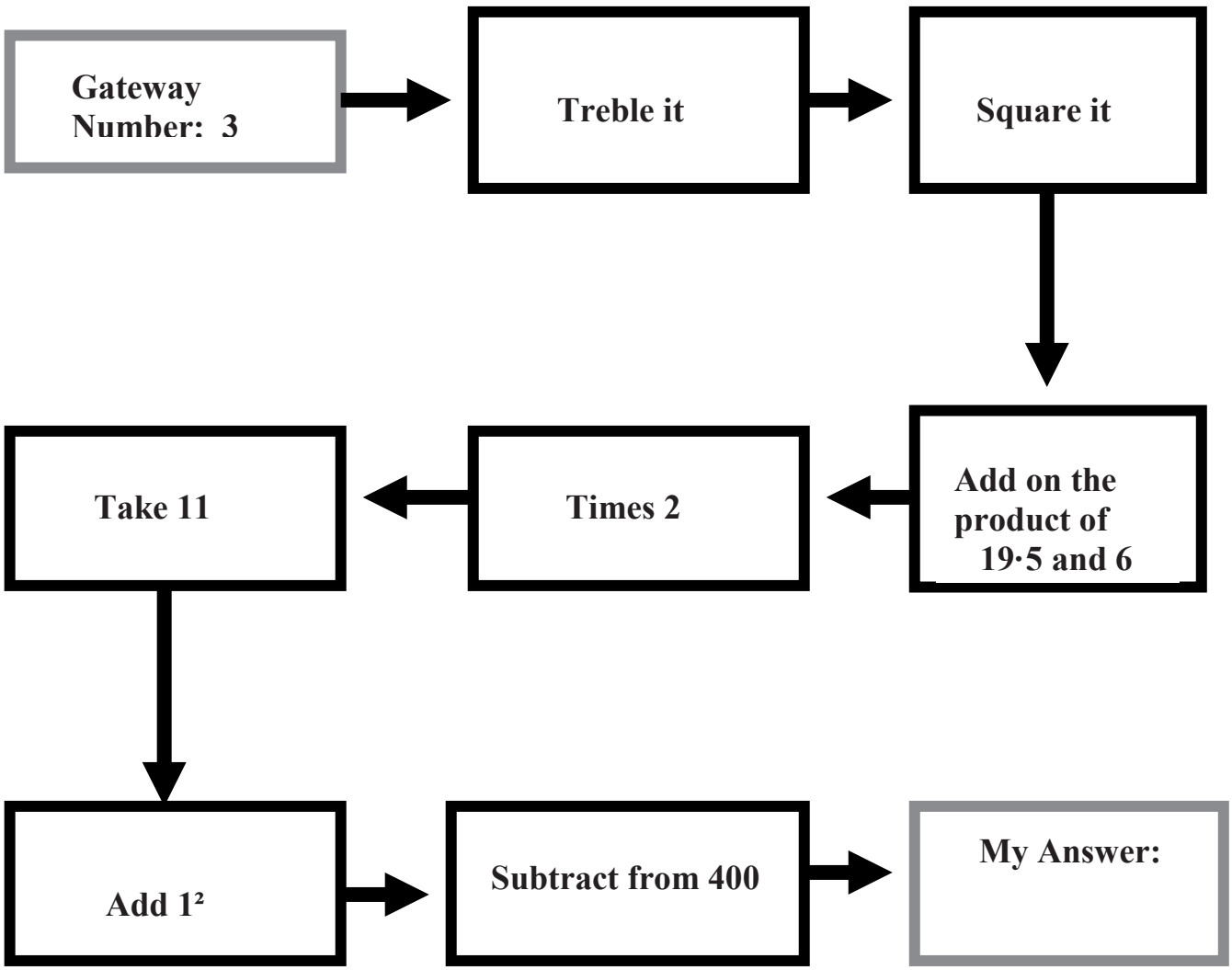
# Q 18


Gateway
Number: 12
Square it
Times 4
Add on the
product of
9·5 and 8
Divide by 4
Take 16
Add 15²
Subtract from 400
My Answer:

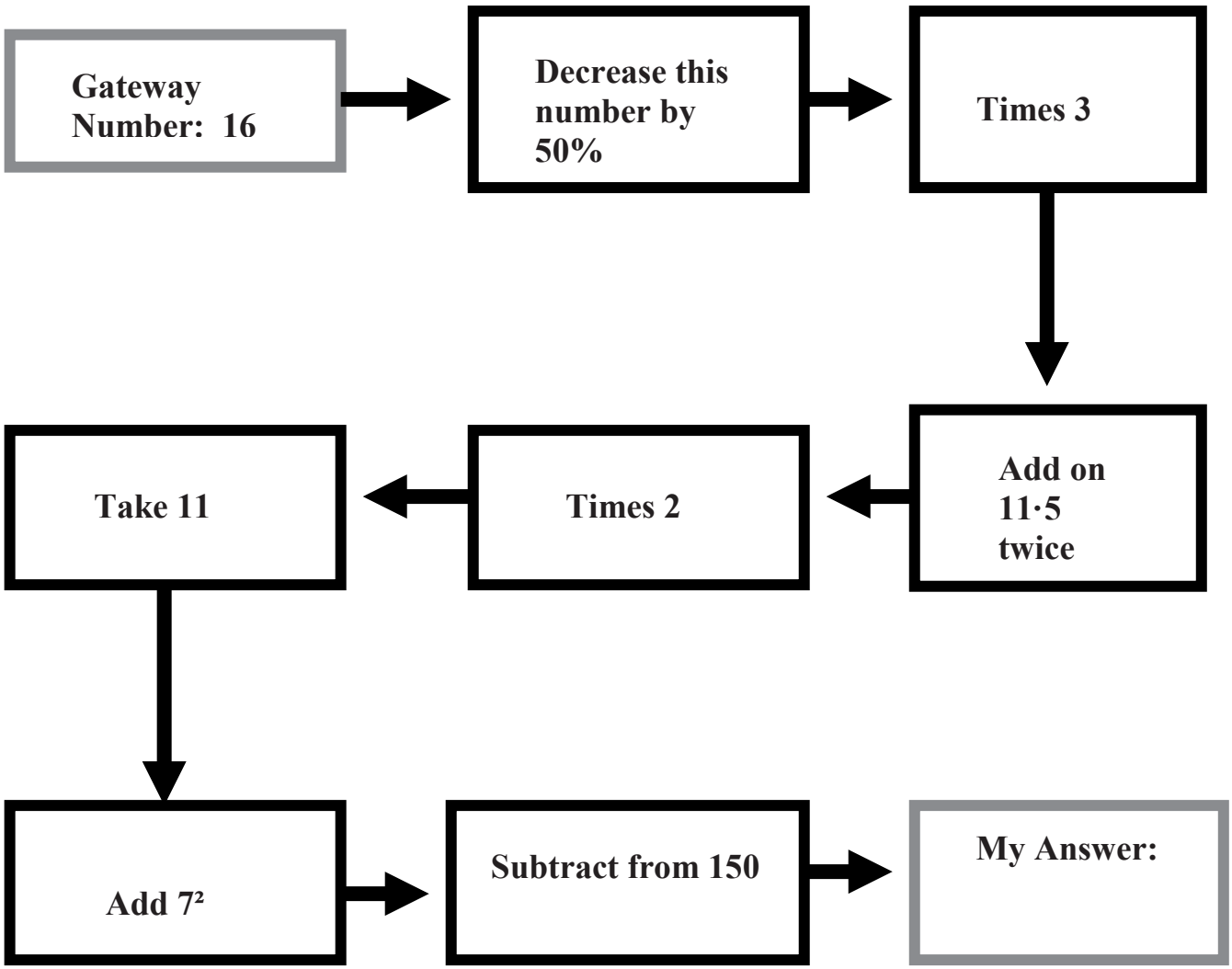
# Q 19


Gateway
Number: 24
Get 25% of
this number
Times 3
Add on
5·5 twice
Times 2
Take 11
Add 13²
Subtract from 300
My Answer:

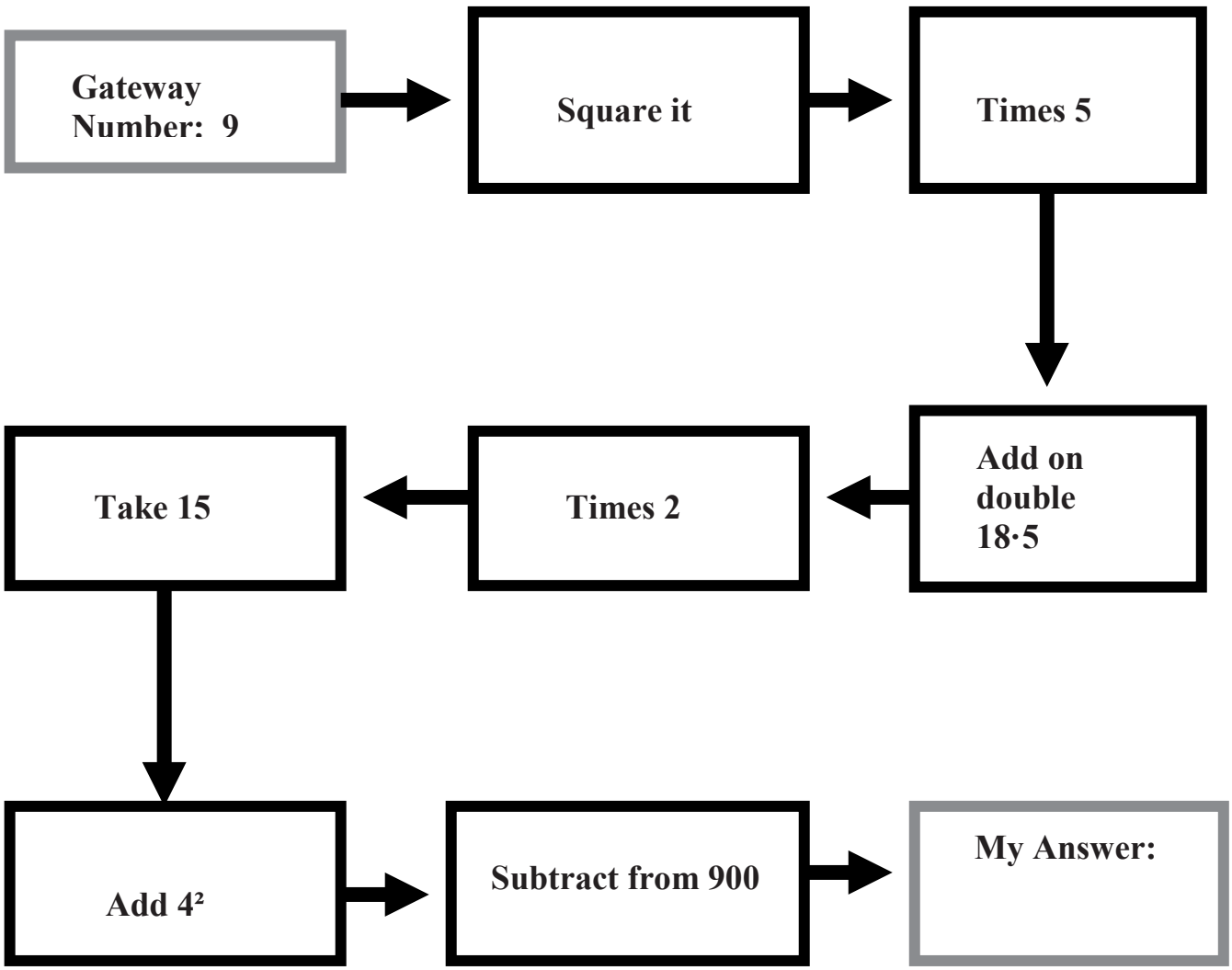
# Q 20


Gateway
Number: 3
Treble it
Square it
Add on the
product of
19·5 and 6
Times 2
Take 11
Add 1²
Subtract from 400
My Answer:

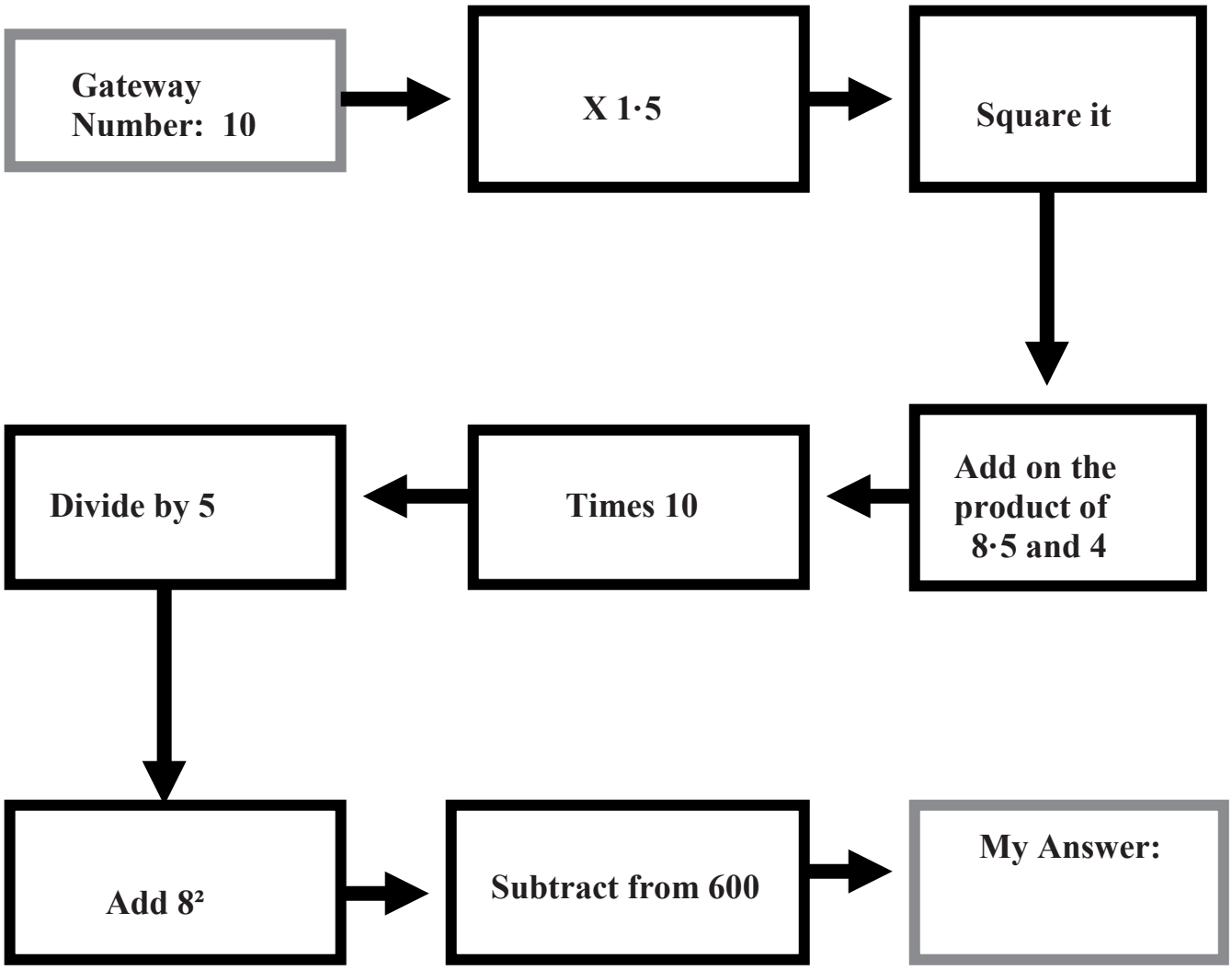
# Q 21


Gateway Number: 16
Decrease this number by 50%
Times 3
Add on 11·5 twice
Times 2
Take 11
Add $7^2$
Subtract from 150
My Answer:

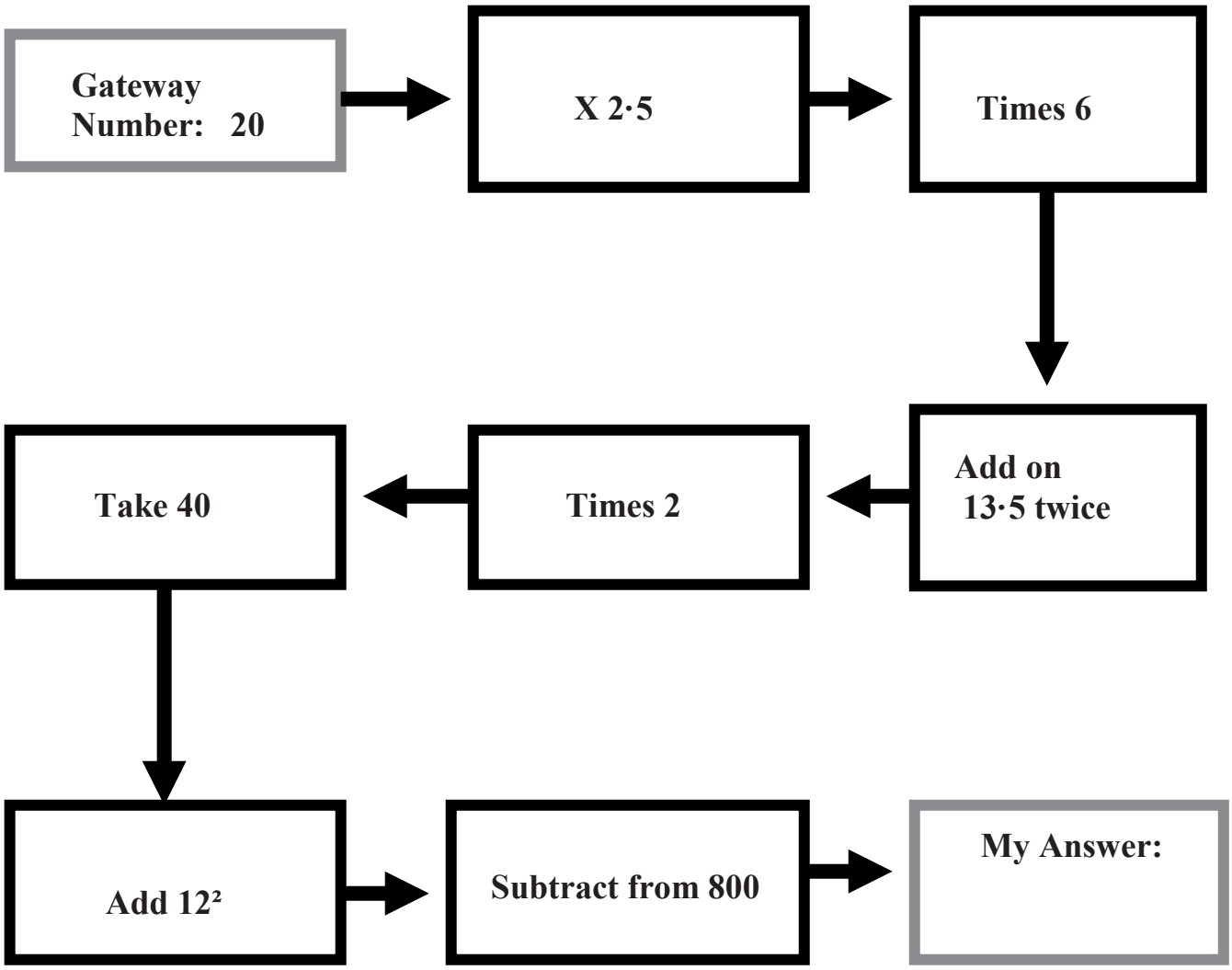
# Q 22


Gateway
Number: 9
Square it
Times 5
Add on
double
18·5
Times 2
Take 15
Add $4^2$
Subtract from 900
My Answer:

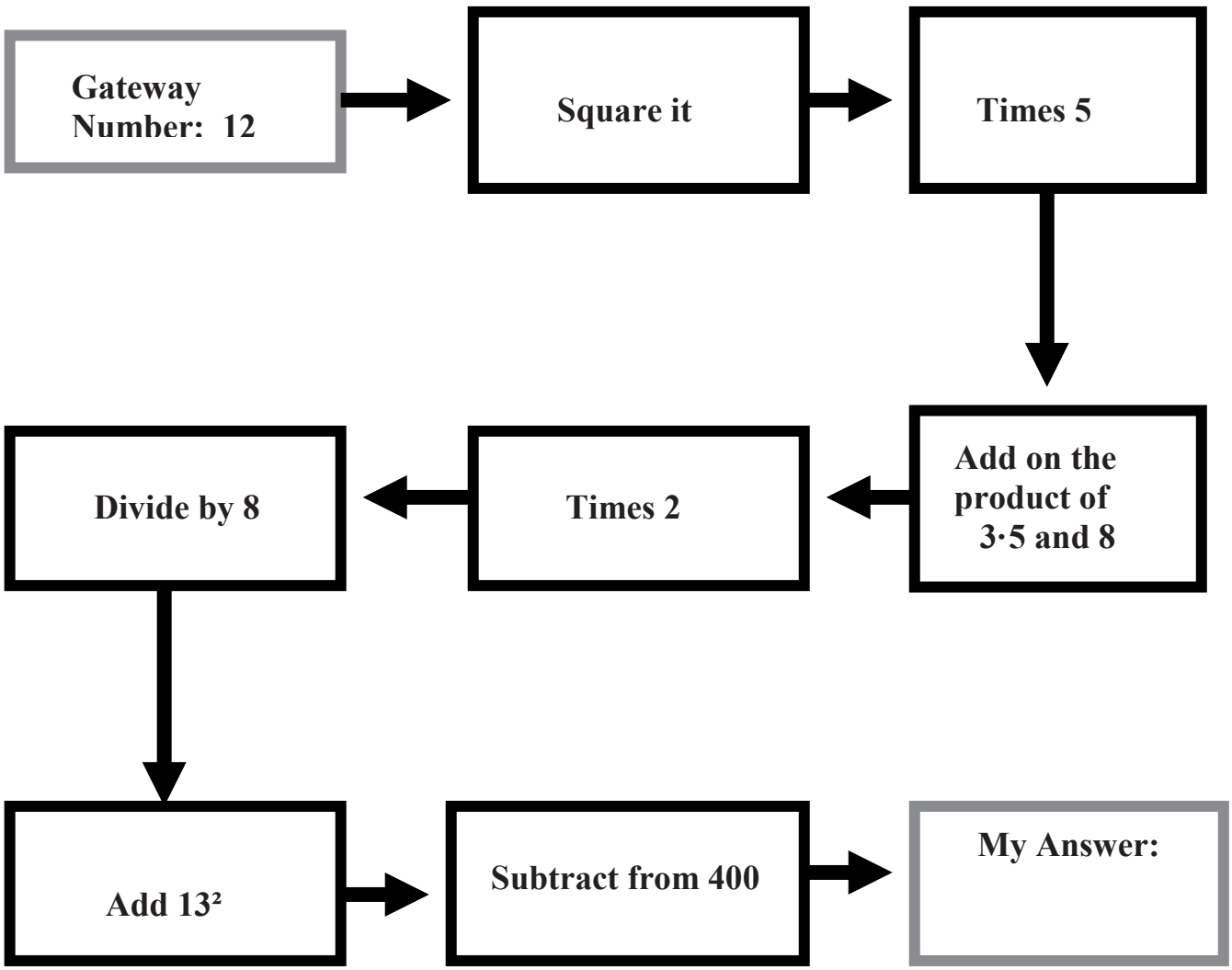
# Q 23


Gateway Number: 10
X 1·5
Square it
Add on the product of 8·5 and 4
Times 10
Divide by 5
Add $8^2$
Subtract from 600
My Answer:

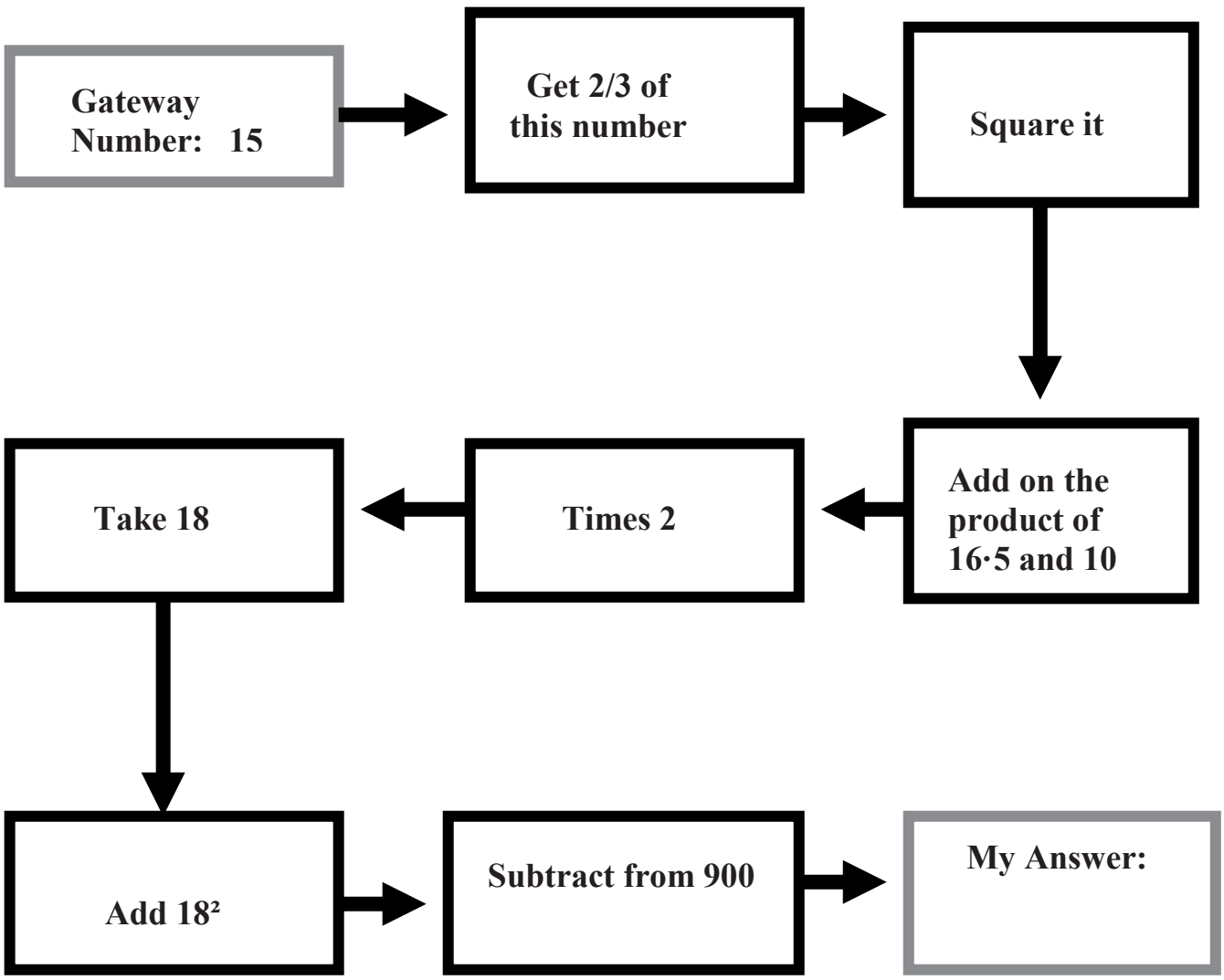
# Q 24


Gateway Number: 20
X 2·5
Times 6
Add on 13·5 twice
Times 2
Take 40
Add 12²
Subtract from 800
My Answer:

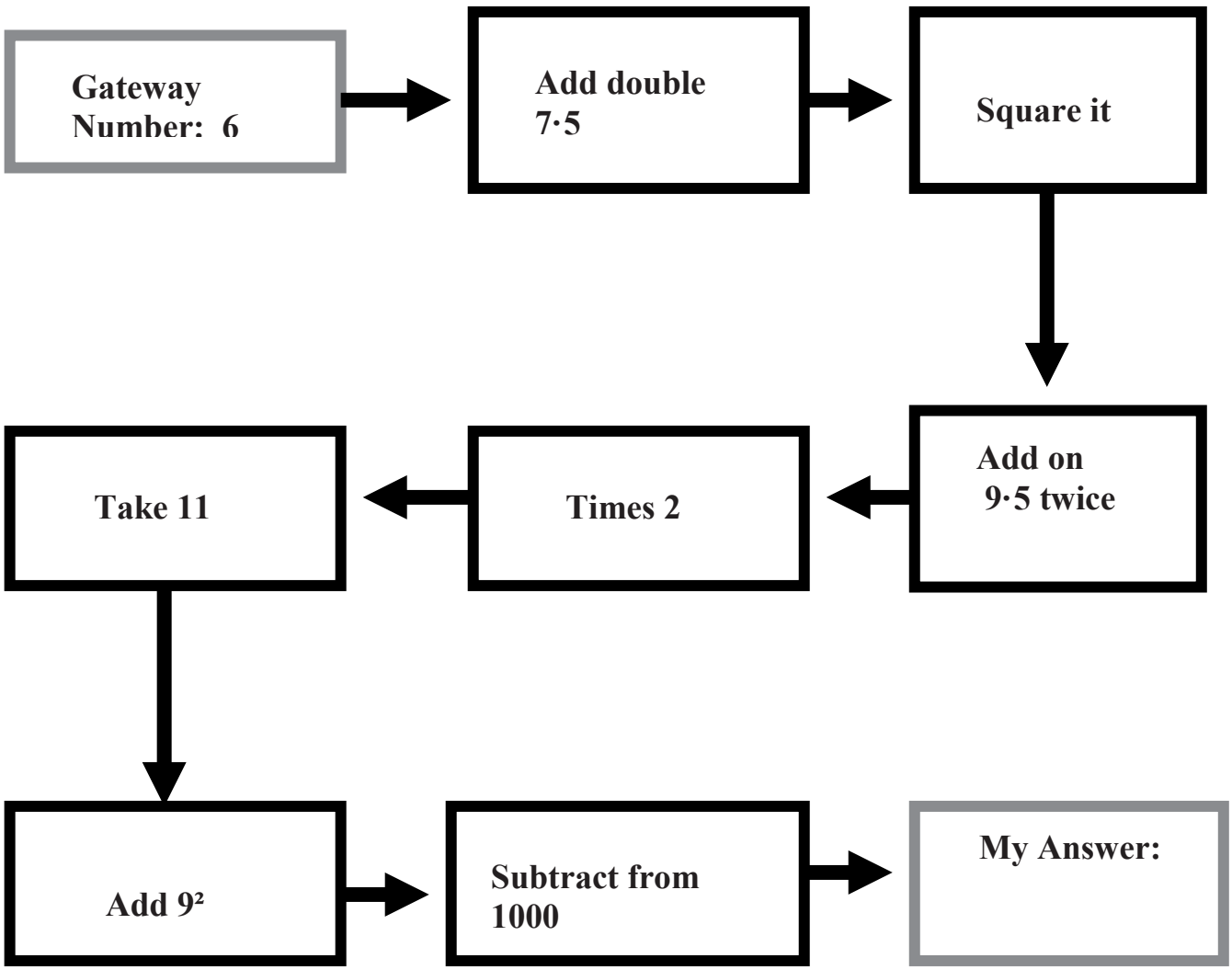
# Q 25


Gateway Number: 12
Square it
Times 5
Add on the product of 3·5 and 8
Times 2
Divide by 8
Add $13^2$
Subtract from 400
My Answer:

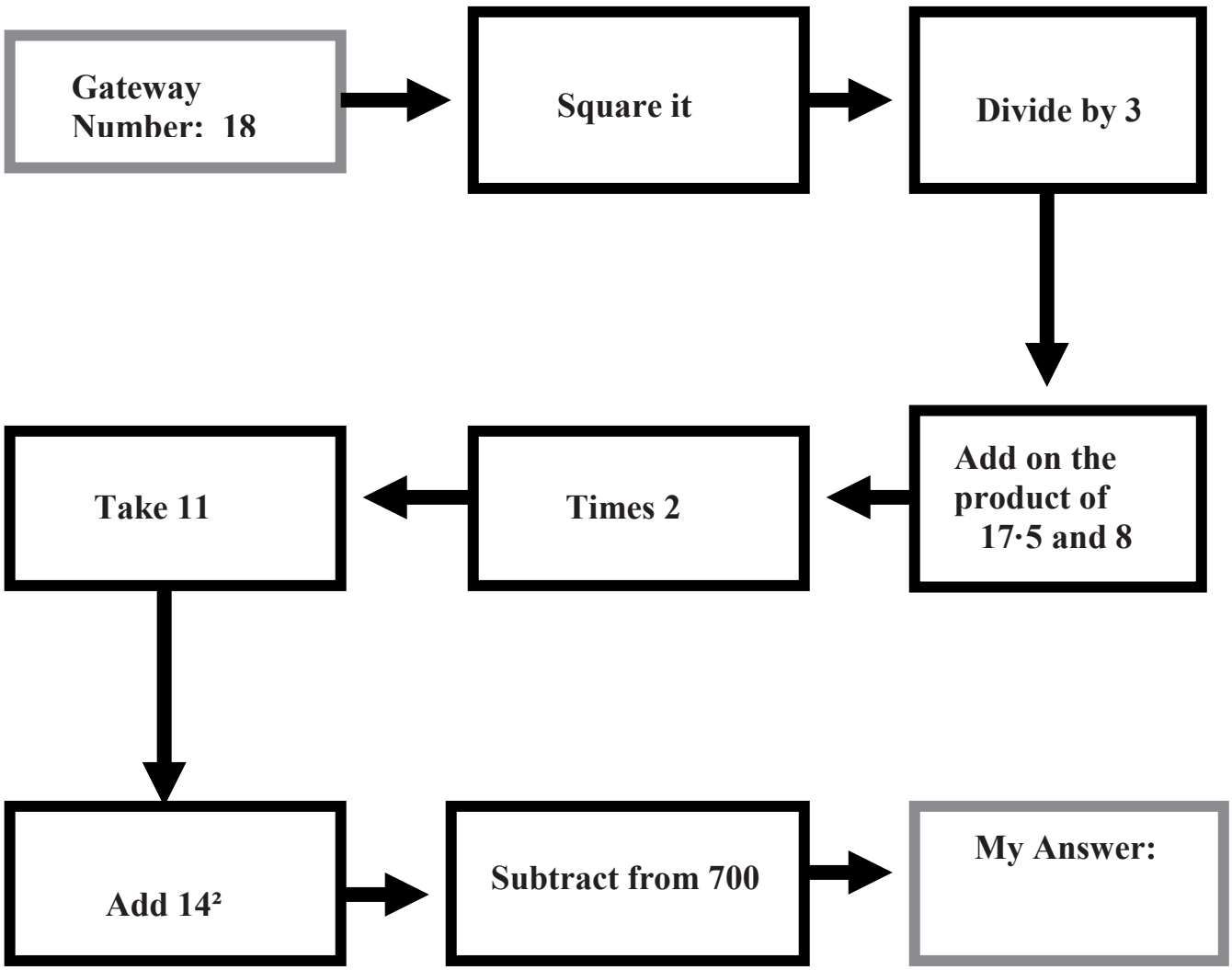
# Q 26


Gateway Number: 15
Get 2/3 of this number
Square it
Add on the product of 16·5 and 10
Times 2
Take 18
Add $18^2$
Subtract from 900
My Answer:

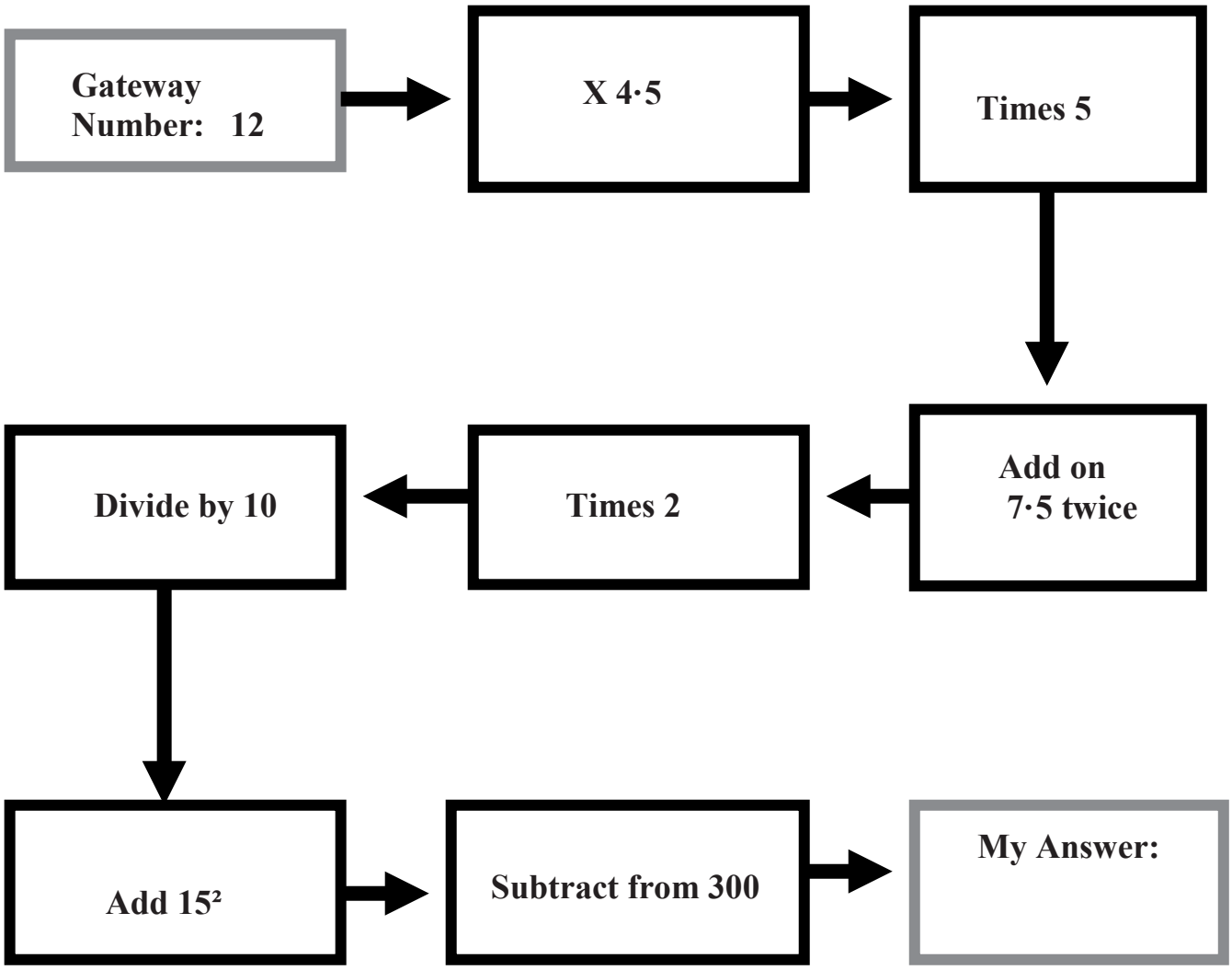
# Q 27


Gateway
Number: 6
Add double
7·5
Square it
Add on
9·5 twice
Times 2
Take 11
Add $9^2$
Subtract from
1000
My Answer:

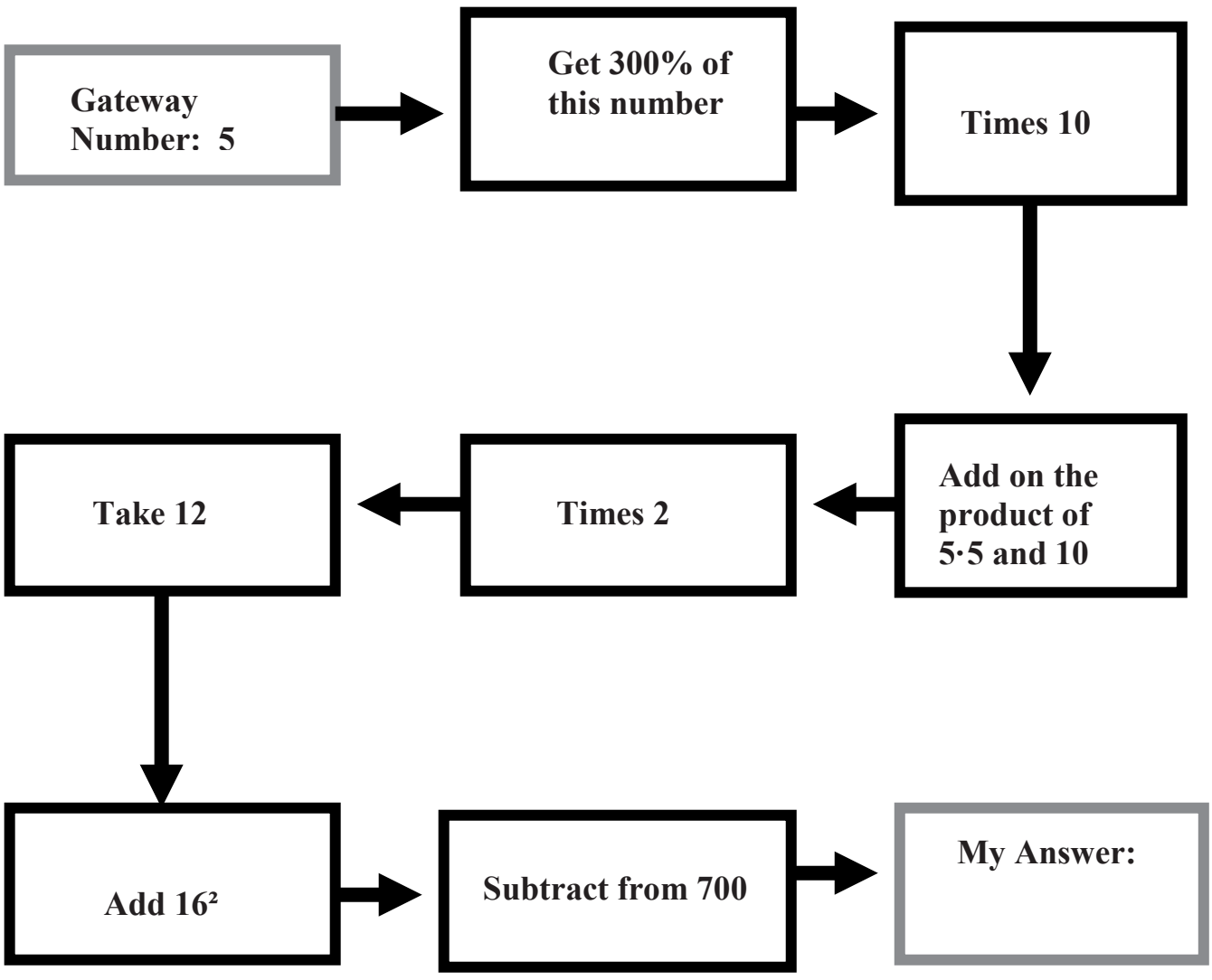
# Q 28


Gateway
Number: 18
Square it
Divide by 3
Add on the
product of
17·5 and 8
Times 2
Take 11
Add 14²
Subtract from 700
My Answer:

# Q 29


Gateway Number: 12
X 4·5
Times 5
Add on 7·5 twice
Times 2
Divide by 10
Add $15^2$
Subtract from 300
My Answer:

# Q 30


Gateway Number: 5
Get 300% of this number
Times 10
Add on the product of 5·5 and 10
Times 2
Take 12
Add $16^2$
Subtract from 700
My Answer:

# Solutions to Flow Sums

| Question Number | Answer |
|---|---|
| Q 1 | 124 |
| Q 2 | 147 |
| Q 3 | 309 |
| Q 4 | 451 |
| Q 5 | 273 |
| Q 6 | 461 |
| Q 7 | 670 |
| Q 8 | 62 |
| Q 9 | 92 |
| Q 10 | 61 |
| Q 11 | 452 |
| Q 12 | 25 |
| Q 13 | 31 |
| Q 14 | 67 |
| Q 15 | 22 |
| Q 16 | 14 |
| Q 17 | 41 |
| Q 18 | 28 |
| Q 19 | 84 |
| Q 20 | 14 |
| Q 21 | 18 |
| Q 22 | 15 |
| Q 23 | 18 |
| Q 24 | 42 |
| Q 25 | 44 |
| Q 26 | 64 |
| Q 27 | 10 |
| Q 28 | 19 |
| Q 29 | 18 |
| Q 30 | 46 |