

Arrow Sums

Student Workbook 1



Published in 2009 by
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The Junior Certificate School Programme Support Service is funded by the Teacher Education Section, Department of Education and Science and the European Social Fund.

The Junior Certificate School Programme Literacy and Numeracy Strategy and the Demonstration Library Project are funded by the Early Literacy Initiative and the Delivering Equality of Opportunity in Schools (DEIS) Action Plan within the Teacher Education Section of the Department of Education and Science.

The Junior Certificate School Programme is a national programme sponsored by the Department of Education and Science and the National Council for Curriculum and Assessment.

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Introduction

“Arrow Sums, Student Workbook 1” contains a suite of forty arithmetical challenges. In each “Arrow Sum”, the student is provided with a gateway number and he /she has to work his / her way from the base to the tip of the arrow, following the computational instructions that are provided along the way, to discover the missing answer at the tip of the arrow.

Each “Arrow 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.**

“Arrow Sums” are an exciting way to revise, practise and consolidate important computational skills and to enhance numerical understanding in important conceptual domains.

Each “Arrow 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 the number puzzles are provided in the appendix section (beginning on page 44).

Gateway Number: 5

Q1

Double it

Add 3

Double it

Take away 4

**Get 50% of
this number**

My Answer:

Gateway Number: 6

Q2

Treble it

Add 9

Times 2

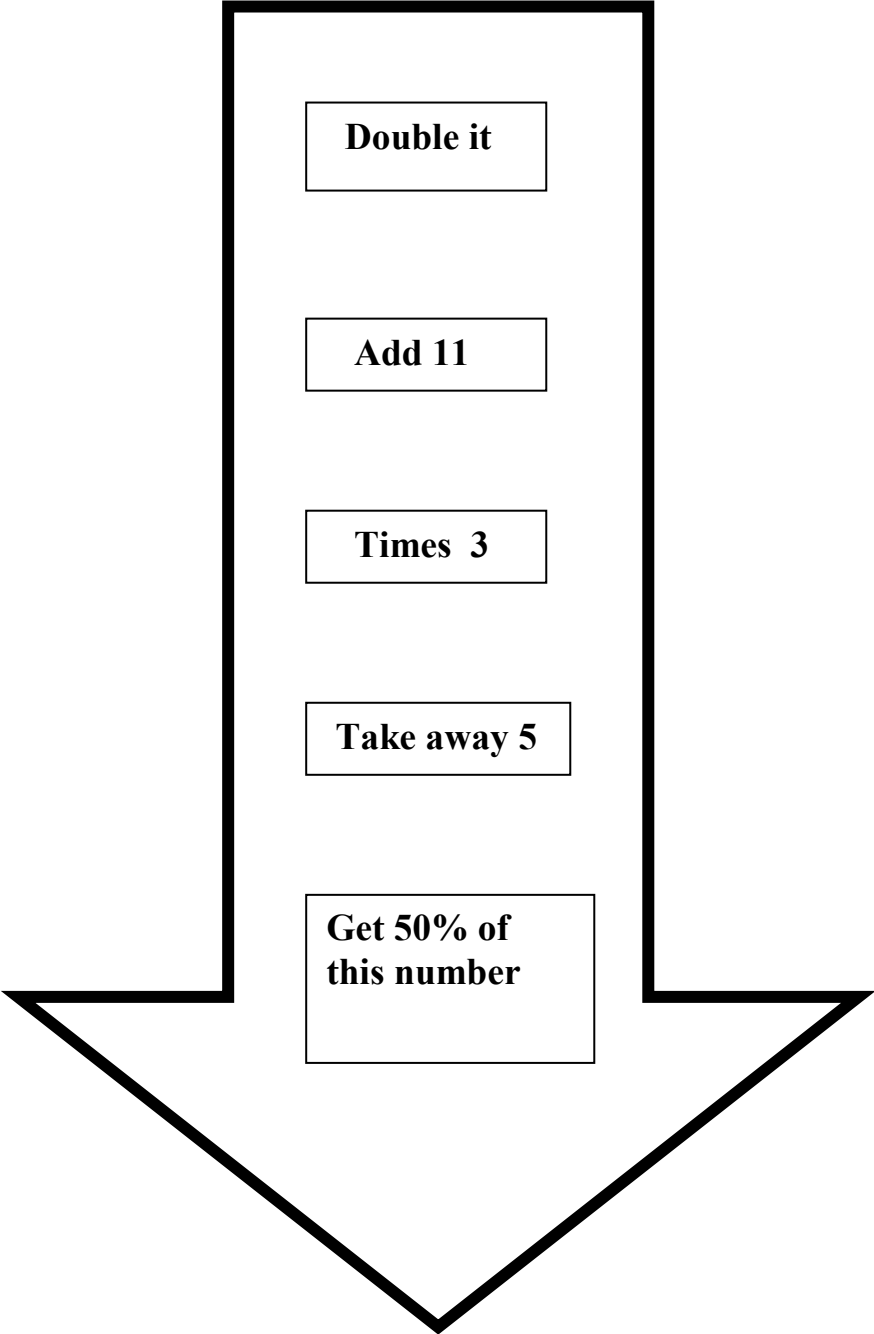
Add 10

Take away 16

My Answer:

Gateway Number: 7

Q3



My Answer:

Gateway Number: 8

Q4

Treble it

Add 17

Times 3

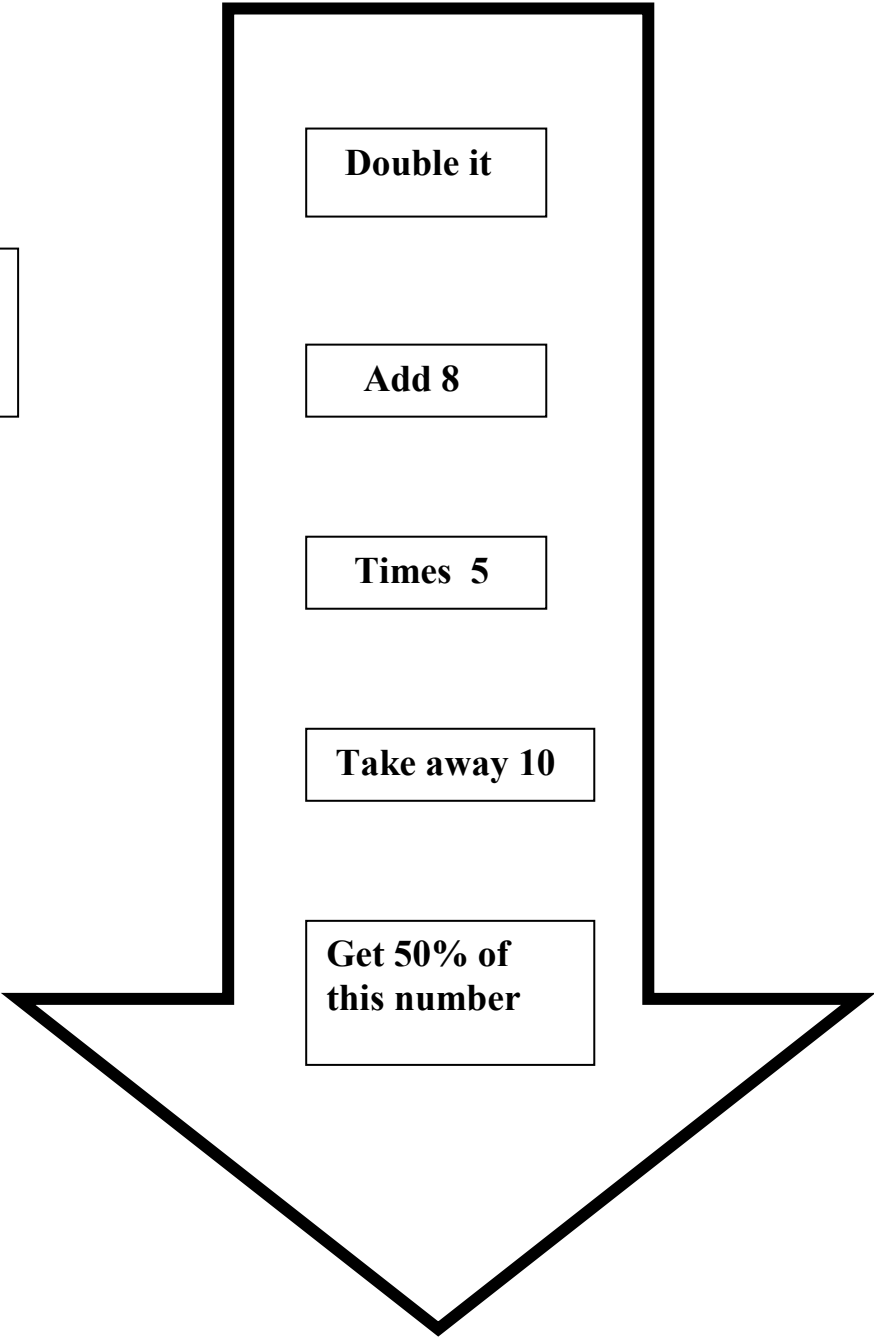
Take away 3

Double it

My Answer:

Gateway Number: 11

Q5



My Answer:

Gateway Number: 9

Q6

Treble it

Add 11

Times 2

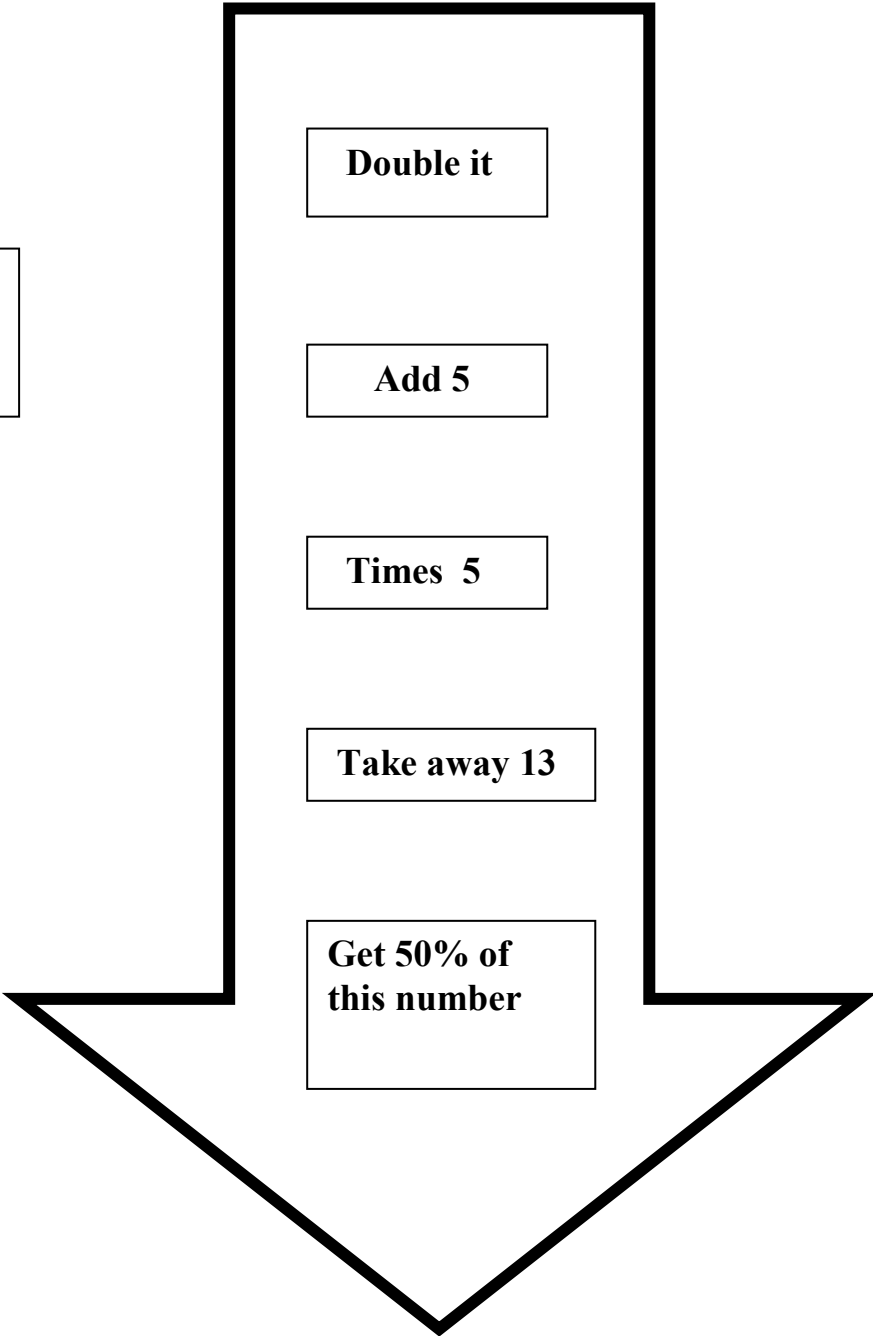
Take away 3

Double it

My Answer:

Gateway Number: 12

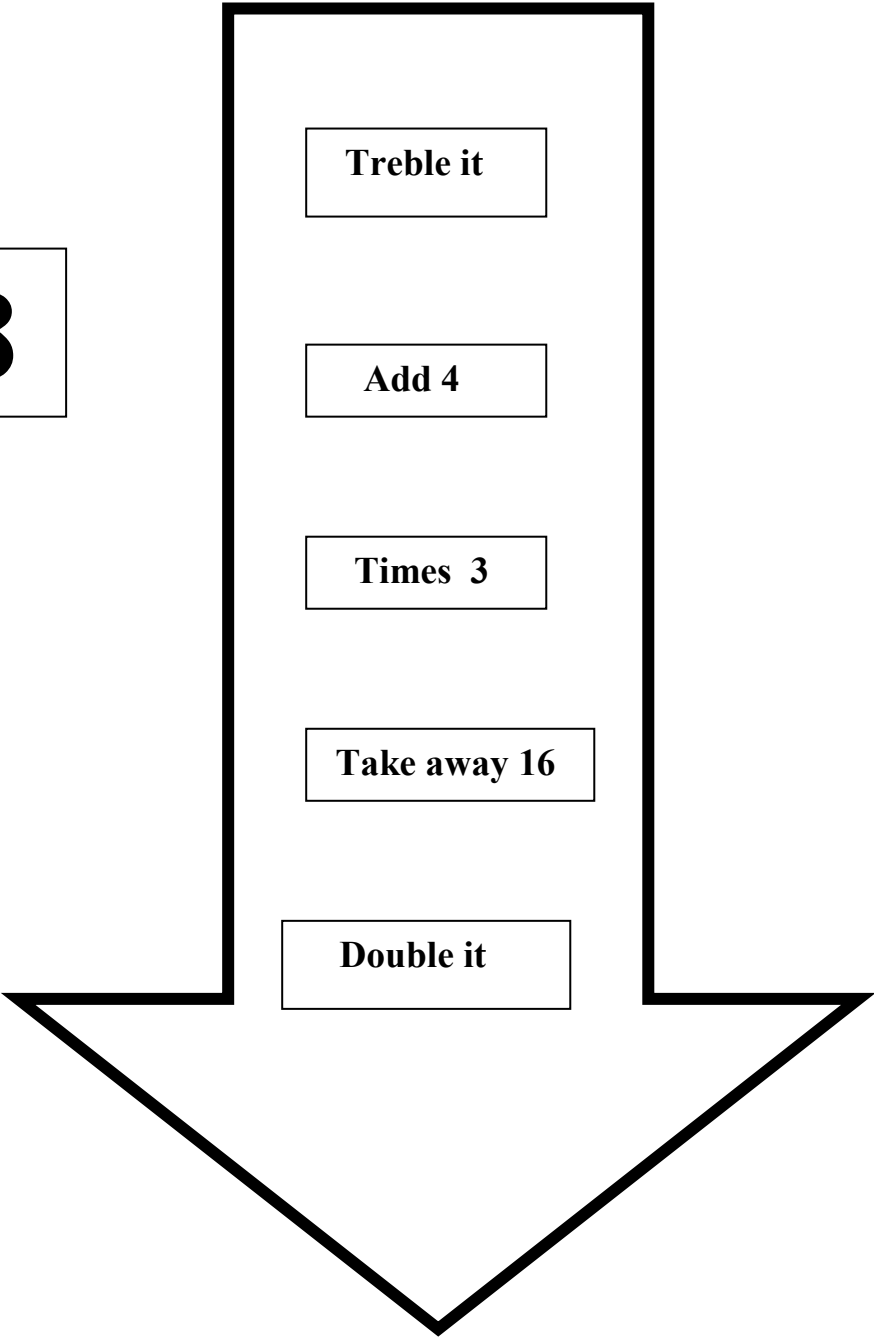
Q7



My Answer:

Gateway Number: 13

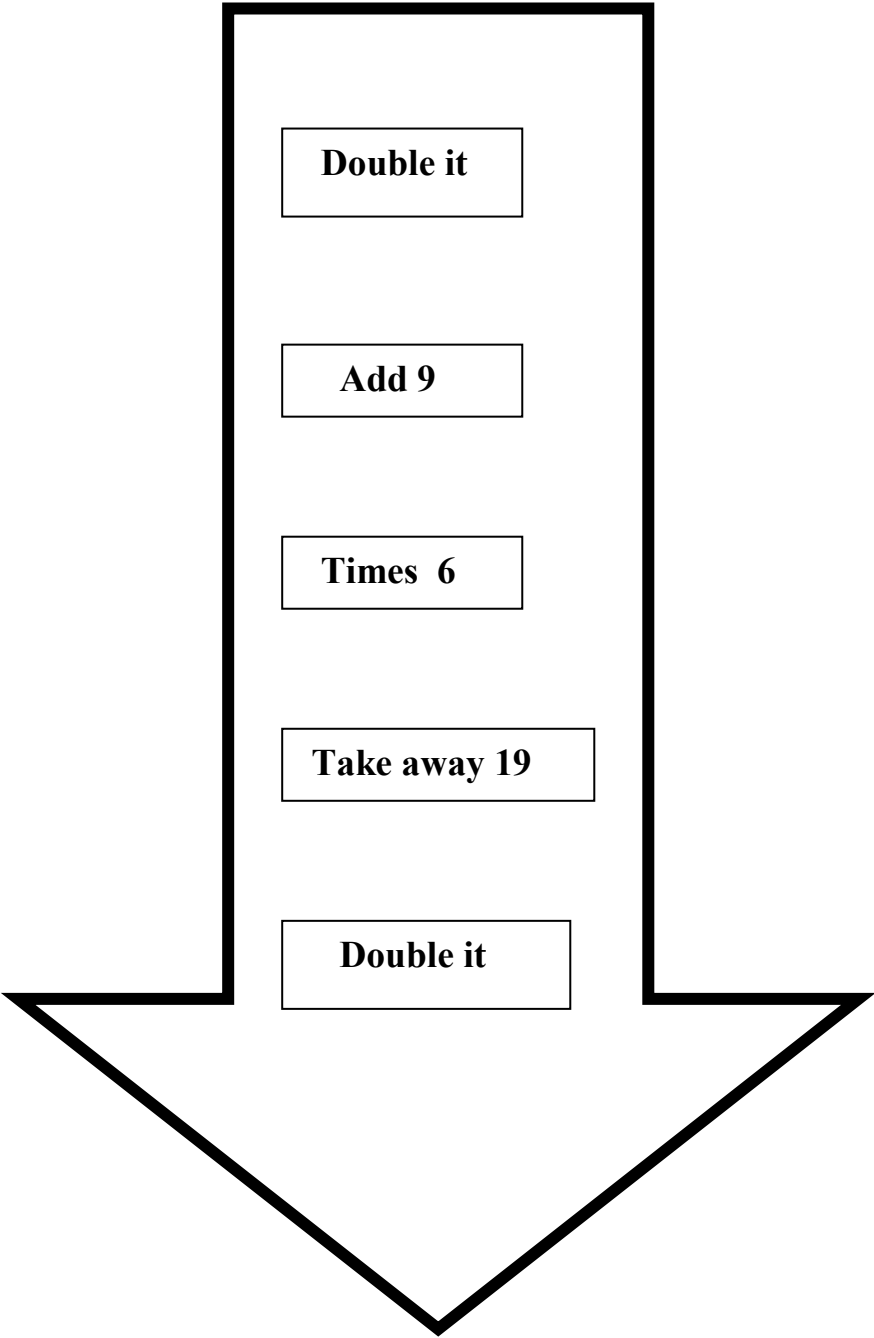
Q8



My Answer:

Gateway Number: 19

Q9



My Answer:

Gateway Number: 16

Q10

Double it

Add 10

Times 4

Take away 22

**Get 50% of
this number**

My Answer:

Gateway Number: 22

Q11

Times 3

Take away 4

Times 8

**Halve this
number**

Divide by 4

My Answer:

Gateway Number: 17

Q12

Double it

Add 5

Times 5

Add 9

**Get 25% of
this number**

My Answer:

Gateway Number: 25

Q13

Times 4

Take away 5

Times 6

**Halve this
number**

Divide by 3

My Answer:

Gateway Number: 24

Q14

Double it

Add 5

Times 5

Double it

**Get 20% of
this number**

My Answer:

Gateway Number: 35

Q15

Times 5

Take away 7

Times 5

**Halve this
number**

Divide by 3

My Answer:

Gateway Number: 19

Q16

Times 2

Take away 11

Times 5

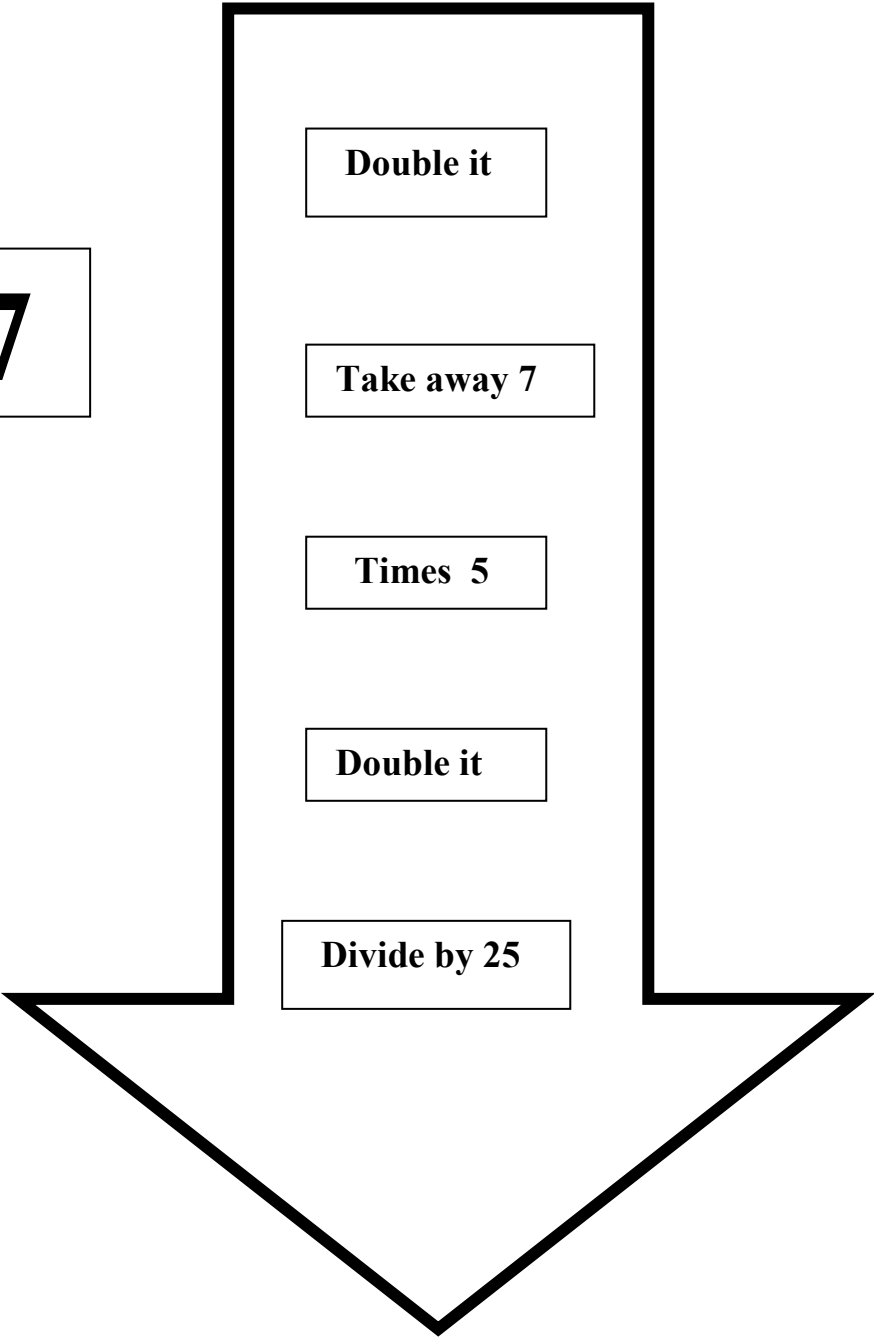
Add 11

**Get 50% of
this number**

My Answer:

Gateway Number: 16

Q17



My Answer:

Gateway Number: 23

Q18

Times 5

Add 9

Times 5

**Halve this
number**

**Get 20% of
this number**

My Answer:

Gateway Number: 34

Q19

Double it

Take away 8

Times 5

Add double 6

Divide by 6

My Answer:

Gateway Number: 33

Q20

Times 6

Add 15

Times 5

Add double 5

**Get $\frac{1}{5}$ of this
number**

My Answer:

Gateway Number: 8

Q21

Double it

Times 6

Reverse the digits

Subtract from 100

**Get 200% of
this number**

My Answer:

Gateway Number: 26

Q22

Double it

Take away 8

Times 5

Add double 7

**Get 150% of
this number**

My Answer:

Gateway Number: 14

Q23

Double it

Reverse the digits

Times 5

Subtract from 500

Get $\cdot 5$ of this number

My Answer:

Gateway Number: 12

Q24

Double it

Take away 8

Times 5

Add double 9

**Get 50% of
this number**

My Answer:

Gateway Number: 21

Q25

Times 3

Add 19

Reverse the digits

Subtract from 200

**Get $\cdot 5$ of this
number**

My Answer:

Gateway Number: 11

Q26

Double it

Times 3

Take away 11

Add treble 7

**Get 150% of
this number**

My Answer:

Gateway Number: 23

Q27

Times 4

Reverse the digits

Times 5

Subtract from 180

Get $\frac{2}{5}$ of this number

My Answer:

Gateway Number: 35

Q28

Double it

Times 3

Take away 15

Add double 25

**Get 20% of
this number**

My Answer:

Gateway Number: 22

Q29

Double it

Times 3

Add double 10

Subtract from 164

Get $\cdot 75$ of this number

My Answer:

Gateway Number: 19

Q30

Double it

Subtract from 201

Times 7

Add double 4·5

**Get 10% of
this number**

My Answer:

Gateway Number: 32

Q31

Times 5

Add double 5·5

Times 9

**Get 1/3 of
this number**

Take away 13

My Answer:

Gateway Number: 16

Q32

Treble it

Subtract from 500

Times 4

**Get 25% of
this number**

Double it

My Answer:

Gateway Number: 18

Q33

Times 7

Take double 9·5

Times 8

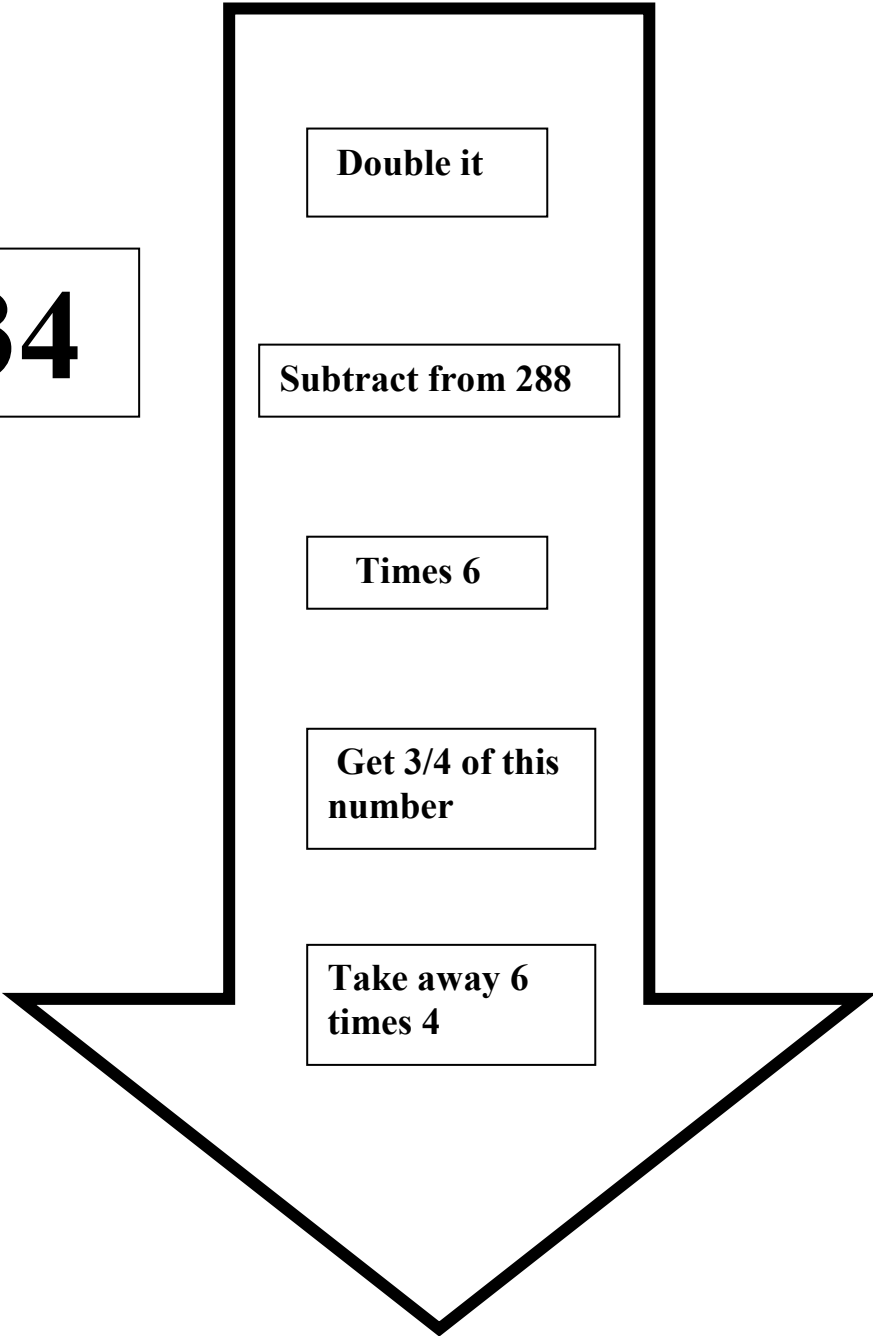
**Get 75% of
this number**

Times 5

My Answer:

Gateway Number: 42

Q34



Double it

Subtract from 288

Times 6

Get 3/4 of this number

Take away 6 times 4

My Answer:

Gateway Number: 33

Q35

Times 11

Add double 8·5

Times 2

**Get 10% of
this number**

Times 12

My Answer:

Gateway Number: 27

Q36

Double it

Subtract from 175

Times 5

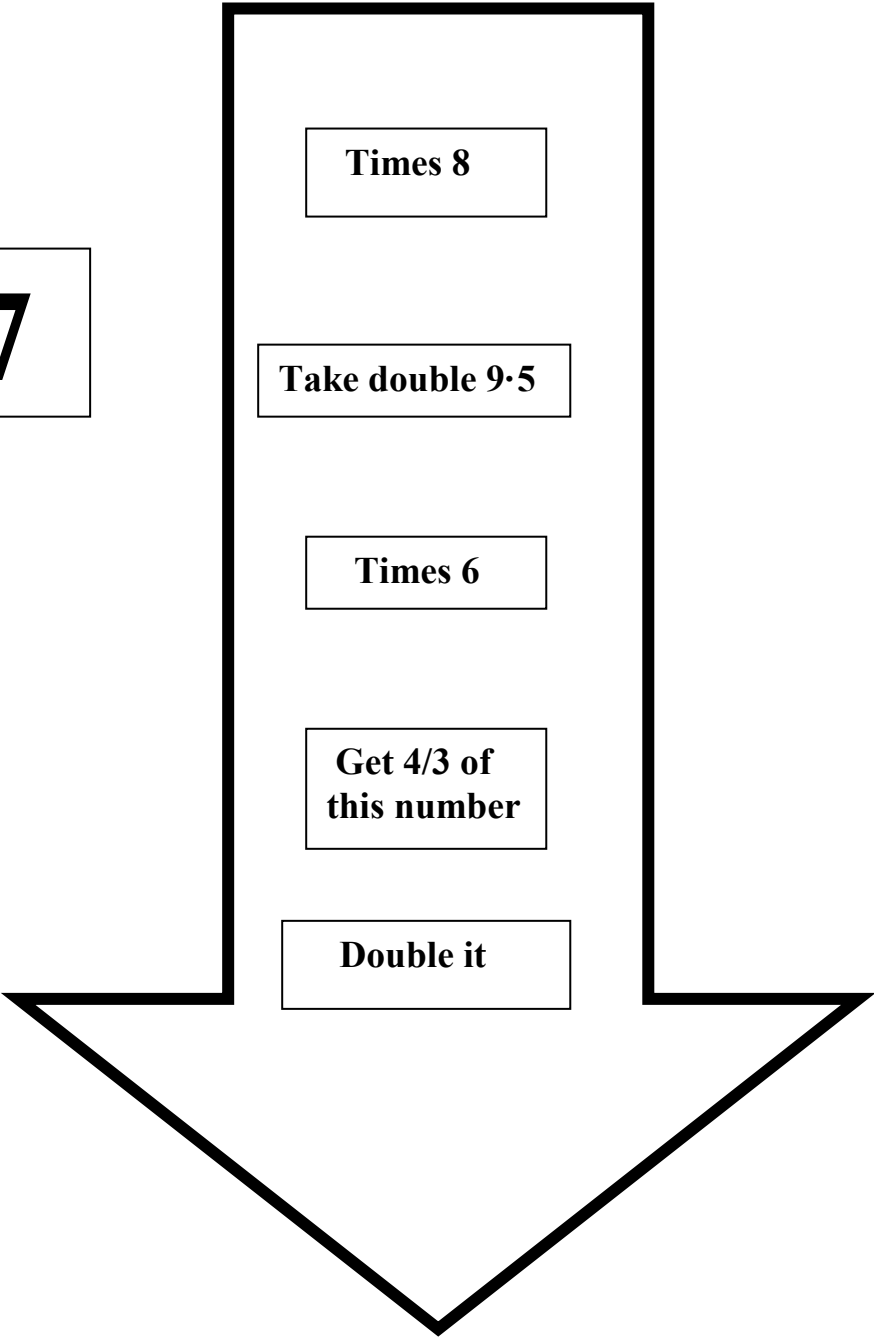
**Get 20% of
this number**

**Take away 8
times 9**

My Answer:

Gateway Number: 42

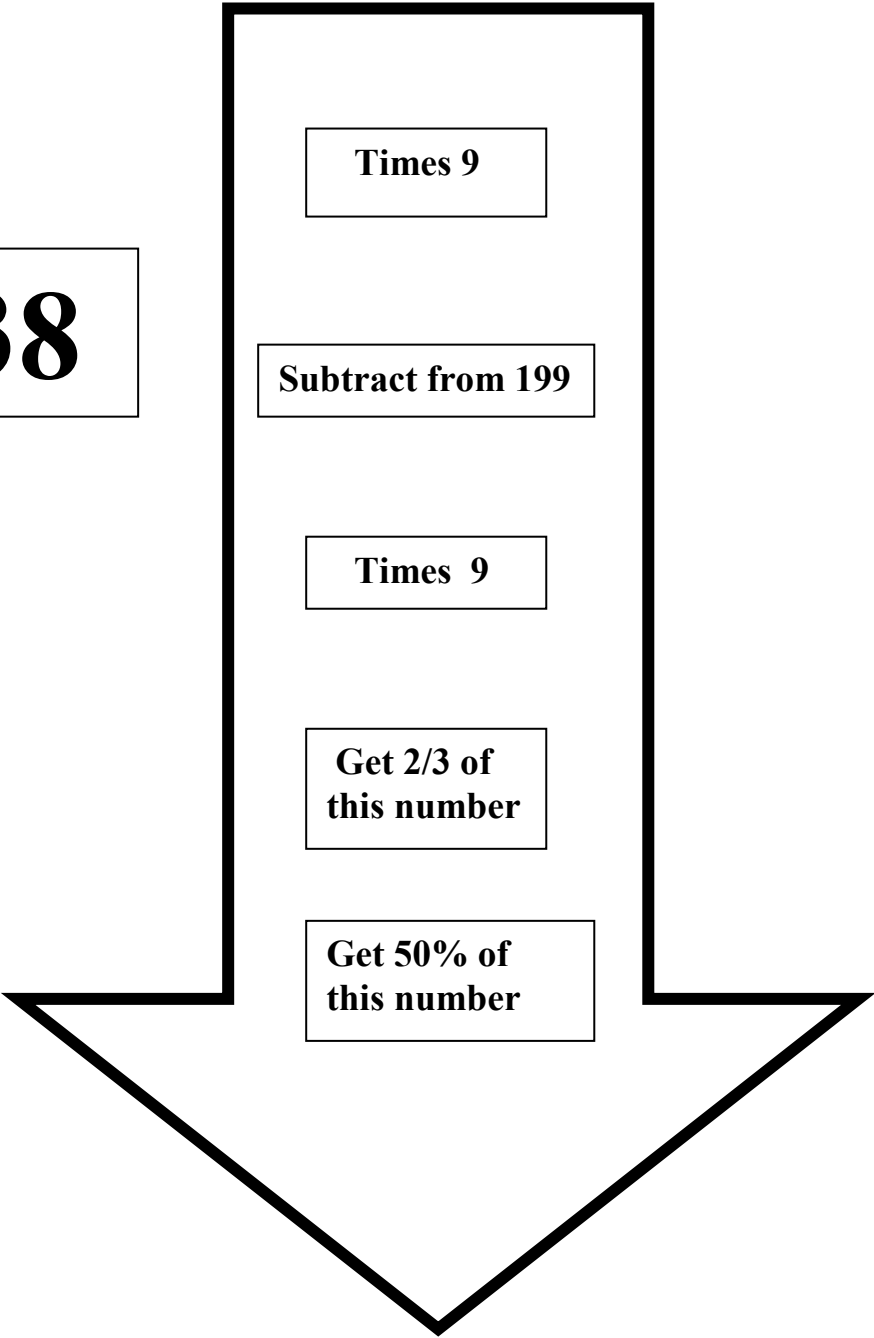
Q37



My Answer:

Gateway Number: 19

Q38



Times 9

Subtract from 199

Times 9

**Get $\frac{2}{3}$ of
this number**

**Get 50% of
this number**

My Answer:

Gateway Number: 45

Q39

Double it

Add double 15

Times 4

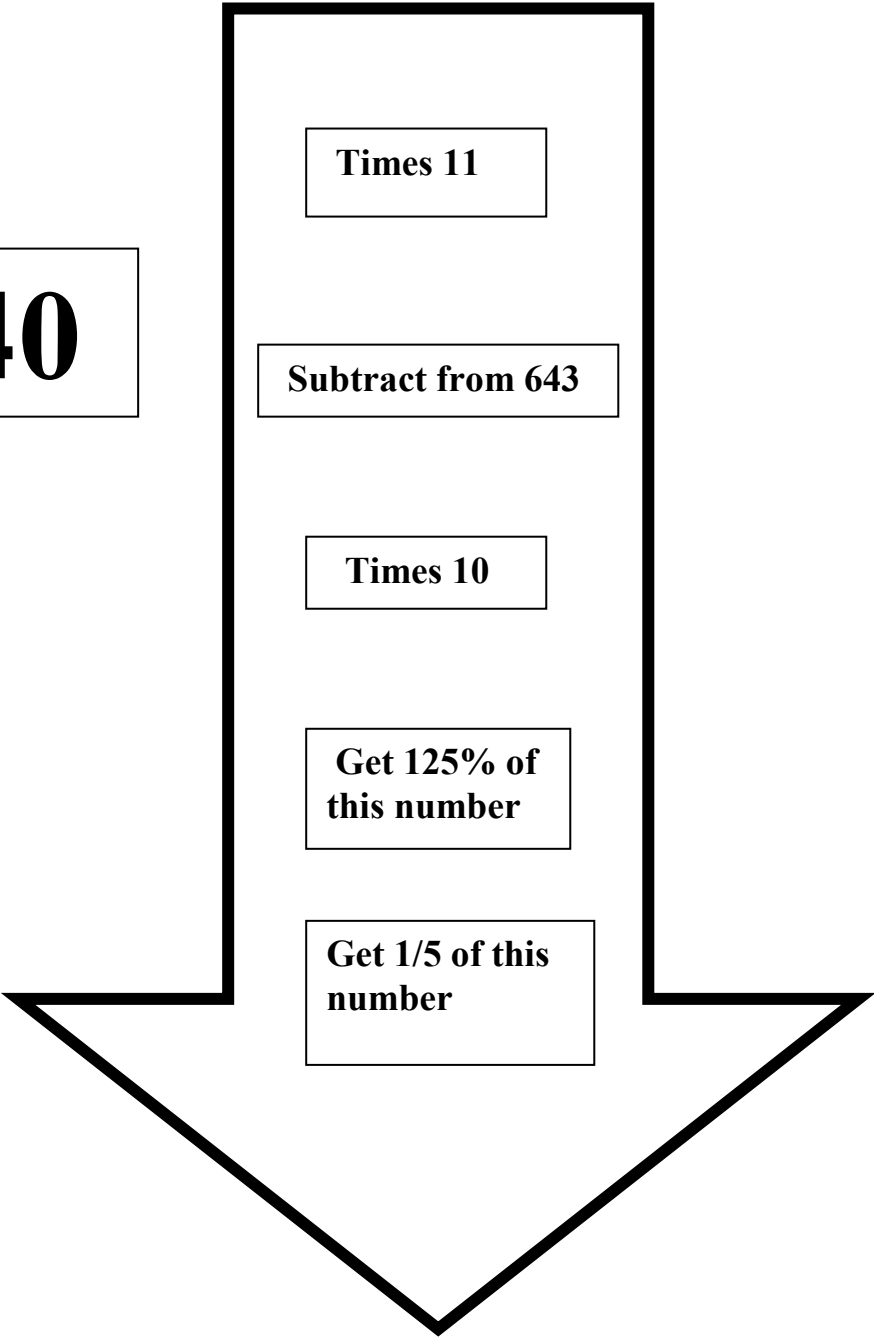
**Get 50% of
this number**

Times 6

My Answer:

Gateway Number: 55

Q40



My Answer:

Answers to Arrow Sums

Question Number	Answer
Q1	11
Q2	48
Q3	35
Q4	240
Q5	70
Q6	146
Q7	66
Q8	226
Q9	526
Q10	73
Q11	62
Q12	51
Q13	95
Q14	106
Q15	140
Q16	73
Q17	10
Q18	62
Q19	52
Q20	215
Q21	62
Q22	351
Q23	45
Q24	49
Q25	86
Q26	114
Q27	14
Q28	49
Q29	9
Q30	115
Q31	500
Q32	904
Q33	3210
Q34	894
Q35	912
Q36	49
Q37	5072

Q38	84
Q39	1440
Q40	95