**Finding the SUM of Sequences:**

**EXAMPLE: 1+2+3+4+5+6+7+8 =**

Strategy:

1. Count the number of pairs.

 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8

 There are 4 pairs.

1. Add up the first opposite pair ONLY.

 1+8 = 9

1. Multiply the number of pairs times the answer.

4 pairs times 9 = 36

1. Write down the answer.

 36

**Try these:**

2 + 4 + 6 + 8 + 10 + 12 =

1 + 2 + 3 + 4 + 5 … 48 + 49 + 50 =

3 + 6 + 9 + 12 + 15 + 18 =

5 + 10 + 15 + 20 + 25 + 30 + 35 + 40 =

21 + 22 + 23 + 24 + 25 + 26 =

4 + 8 + 12… + 24 =

11 + 22 + 33 + 44 =

6 + 12 + 18 + 24… + 48 =

**Multiplying times 11:**

**EXAMPLE: 254 x 11**

Strategy:

1. Write down the ones place digit.

 4

1. Add the digits in the middle as you move from right to left including the single first digit.
 2 🡨 2+5 🡨 5+4 🡨 4
2. Write down the answer.
 2794

**Example: 7365 x 11**

Strategy with regrouping:

1. Write down the ones place digit.

 5

1. Add the digits in the middle as you move from right to left including the single first digit

7 *+1* 🡨 7+3 *+1* (regroup) 🡨 3+6 *+1* (regroup)
 🡨 6+5 (regroup) 🡨 5

1. Write down the answer.
 81015**Try these:**

11 x 543 =

11 x 6015 =

430 x 11 =

7831 x 11 =

823 x 11 =

11 x 713 =

362 x 11 =

8271 x 11 =

**Roman Numerals:**

**I – 1**

**V – 5**

**X – 10**

**L – 50**

**C – 100**

**D – 500**

**M – 1000**

**EXAMPLE: XCVI**

1. Find the highest value C = 100
2. Subtract anything in front of it. XC = 100 – 10 = 90
3. Add anything that comes after it.
 (XC) VI = (90) + 5 + 1 = 96
4. There will be EXCEPTIONS to these rules! We’ll talk about it in practice.

**Try these:**

MMDCC

CCL

CML

XVII

MIX

**EXCEPTIONS to try:**

XIV

MCXC

MIVD

**Division with Remainders:**

**Example: 911 divided by 4 has a remainder of \_\_\_**

Strategy:

1. This question is ONLY asking for the remainder!

Do not write down the entire answer.

 227

4 √ 911

 - 8

 11

 - 8

 31

 - 28

 3

1. The answer is 3 **Try these:**

712 divided by 5 has a remainder of \_\_\_

833 divided by 2 has a remainder of \_\_\_

613 divided by 3 has a remainder of \_\_\_

981 divided by 6 has a remainder of \_\_\_

95 divided by 4 has a remainder of \_\_\_

633 divided by 3 has a remainder of \_\_\_

918 divided by 4 has a remainder of \_\_\_

284 divided by 4 has a remainder of \_\_\_

**Place Value:**

 **Example 752,913.8064**

7 is in the one hundred thousand

5 is in the ten thousand

2 is in the thousand

,

9 is in the hundred

1 is in the ten

3 is in the one or UNIT

.

8 is in the tenth

0 is in the hundredth

6 is in the thousandth

4 is in the ten thousandth

**Try these:**

432,178 What place is the 2 in?

682,900 What place is the 8 in?

981.34 What place is the 1 in?

2,783.12 What place is the 1 in?

872,340 What number is in the tens place?

653,267.33 What number is in the thousands place?

781.234 What number is in the tenths place?

984.7655 What number is in the hundredths place?

7,238.19 What number is in the hundreds place?

**Place Value using base 10**

**EXAMPLE: 4x102 + 1x101 + 7x100 + 3x10-2 + 5x10-3**

Strategy:

1. 100 is the UNIT or ones place. Always start with the units! So 7x100 means you have a 7.
2. 101 is the tens place. So 1x101 means you have a 10.
3. 102 is the hundreds place. So 4x102 means you have a 400
4. SO FAR you have 417.
5. 10-1 means you are in the first decimal place or the tenths place. If a place is skipped, you put a ZERO for that place.
6. 10-2 is the hundredths place. So 3x10-2 means you have 0.03
7. 10-3 is the thousandths place. So you have 5x10-3 means you have .035
8. Put it together and you have 417.035

Remember:

10-1 tenths 10-2 hundredths

100 ones 101 tens 102 hundreds

103 thousands 104 ten thousands 105 hundred thousands

**Try these:**

4 x 104 + 7 x 102 + 1x101 + 5 x 100 + 4 x 10-1 =

6 x 103 + 9 x 102 + 8 x 101 + 4 x 100 + 4 x 10-2 =

7 x 104 + 5 x 103 + 6 x 102 + 3 x 101 + 4 x 100 =

2 x 103 + 7 x 102 + 5 x 101 + 3 x 100 + 4 x 10-2 =

6 x 105 + 7 x 104 + 3 x 103 + 2 x 102 + 3 x 101 =

8 x 105 + 5 x 104 + 7 x 103 + 5 x 101 + 1 x 100 =

6 x 103 + 7 x 102 + 8 x 101 + 5 x 100 + 1 x 10-1 =

2 x 102 + 4 x 101 + 9 x 100 + 3 x 10-1 + 4 x 10-2 =

6 x 104 + 2 x 103 + 6 x 102 + 5 x 100 + 4 x 10-2 =

**Multiplying by 25:**

**Example: 52 x 25**

Strategy:

Since 25 is the same as 100 ÷ 4…

1. Multiply the other number by 100.

52 x 100 = 5200

1. Divide by 4

5,200 divided by 4 is 1,300

**Try these:**

25 x 96 =

25 x 38 =

25 x 52 =

25 x 888 =

25 x 480 =

25 x 568 =

812 x 25 =

124 x 25 =

84 x 25 =

96 x 25 =

456 x 25 =

892 x 25 =

**Multiplying by 50:**

Example: 122 x 50

Strategy:

 Since 50 is the same as 100 ÷ 2…

1. Multiply the other number by 100.

122 x 100 = 12200

1. Divide by 2

12200 divided by 2 is 600

**Try these:**

72 x 50 =

86 x 50 =

27 x 50 =

132 x 50 =

154 x 50 =

213 x 50 =

50 x 46 =

50 x 128 =

50 x 164 =

50 x 152 =

50 x 249 =

50 x 78 =