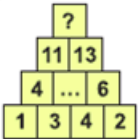
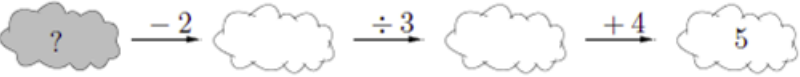


## Early Elementary Week 9: Math Dominoes

1	<p>At a round table there are chairs placed with the same distance between them. They are numbered consecutively 1, 2, 3, .... Peter is sitting on chair number 11, directly across from Chris, who is sitting on chair number 4. How many chairs are there at the table?</p>	$2 2$
2	<p>Which number should be at the question mark in the pyramid?</p>  <p>The pyramid consists of four rows of yellow boxes. The top row has one box with a question mark. The second row has two boxes with the numbers 11 and 13. The third row has three boxes with the numbers 4, an ellipsis, and 6. The bottom row has four boxes with the numbers 1, 3, 4, and 2.</p>	$5 2$
3	<p>A red kangaroo and a gray kangaroo together weigh 139 kg. The red kangaroo weighs 35 kg less than the gray kangaroo. How much does the gray kangaroo weigh?</p>	$3 1$

4	<p>How many 5x5 squares can fit in a 100x4 rectangle?</p>	$8 2$
5	<p>What number needs to be written in the shaded cloud in order to get the number in the last cloud as a result of operations shown in the picture?</p>  <p><math>? \xrightarrow{-2} \quad \xrightarrow{\div 3} \quad \xrightarrow{+4} 5</math></p>	$4 1$

<b>6</b>	A magic apple and two gummy bears weighs the same as a pineapple and 20 grams. On a separate scale, you see that a pineapple weighs the same as a magic apple. How much does one gummy bear weigh?	$5 3$
<b>7</b>	How do you write 25 in binary?	$3 3$
<b>8</b>	Simona is younger than Victor, but older than Tibi. Alice is younger than Tibi, but older than Barbu. Who is the oldest of them all?	$4 2$
<b>9</b>	What is 101 in decimal notation?	$0 2$

<b>10</b>	<p>Move a stick to correct the following. Write the corrected equality on your sheet.</p> <p>XVII – VII = XIX</p>	<b>5 1</b>
-----------	---	------------

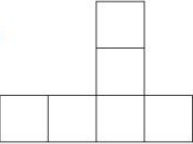
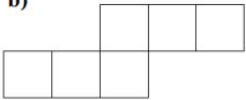
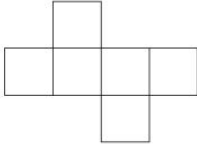
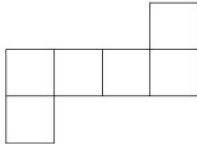
<b>11</b>	<p>One Knight and one Liar on the Island of Knights and Liars are standing at a fork in the road. One path leads to a pot of real gold, and the other path leads to fake gold. What one question should you ask them to determine which path leads you to the real gold?</p>	<b>7 2</b>
-----------	--	------------

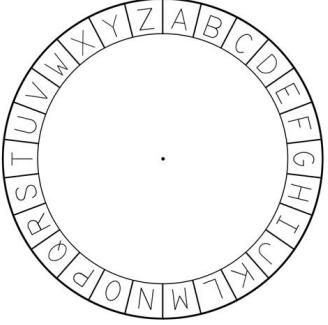
<b>12</b>	<p>Victor has four potted plants: an orchid, a daisy, a tulip, and a daffodil. He wants to arrange them on a windowsill. How many possible ways are there for him to arrange the potted plants?</p>	<b>4 3</b>
-----------	---	------------

<b>13</b>	You see a log that is 24 feet long. How many cuts do you have to make in order to get 8 small, equal-sized logs?	$0 3$
-----------	--	-------

<b>14</b>	Donald's grandfather sleeps through exactly a quarter of the day. Donald sleeps one and a half times as long as his grandfather. What fraction of the day does Donald spend sleeping?	$4 4$
-----------	---	-------

15	Tom's dad is 4 years older than his mom. Right now, his dad is 37 years old. How old was his mother 10 years ago?	3 4
16	Sam ate 10 cookies this week. Kevin ate 7 less than twice as many as Sam ate. How many cookies did Kevin eat?	2 3

17	<p>Which of the following drawings can be nets for cubes?</p> <p>a) </p> <p>b) </p> <p>c) </p> <p>d) </p>	8 1
----	---	-----

<b>18</b>	<p>Encrypt the word "April" using a Caesar cipher of shift 5.</p> 	<b>0 4</b>
<b>19</b>	<p>Anna has \$5.00 in total. An orange is \$2.00 each, and an apple is \$0.50 each. Anna purchases 2 oranges. How many apples can she buy?</p>	<b>1 2</b>
<b>20</b>	<p>If a dog and a rabbit weigh as much as a goat, and a dog weighs as much as 10 rabbits, how many rabbits weigh the same as 1 goat?</p>	<b>6 4</b>

21

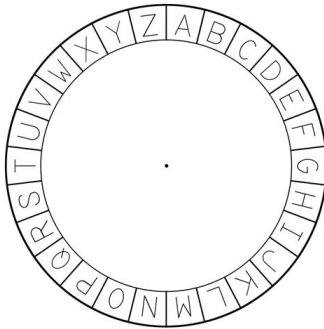
Imagine a new chessboard that is now 10x10. How many 1x1, 2x2, 3x3... 9x9, and 10x10 squares can fit inside this board?

5|4

22

The below message was encoded by shifting the letters 24 places. What does this message say?

FYTC Y EPCYR QSKKCP!



1|6

23

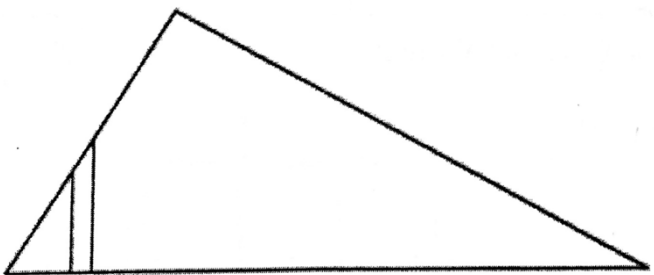
What is the rule for the function machine results from below?

Input (x)	Output (y)
1	3
2	5
5	11
7	15

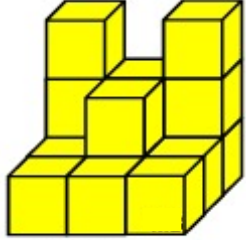
2|5




24	One mutant alien splits into three mutant aliens every second. If we start with one mutant alien, how many mutant aliens do we have after 3 seconds?	9 1
25	What could the following equality be? Write it in numbers.  MOON <u>+SUN</u>  PLUTO	4 5
26	Melinda's favorite number is 5 more than Ada's favorite number. If you add Lauren's favorite number to Ada's favorite number, you get Melinda's favorite number. If Ada's favorite number is 2, what is Lauren's favorite number?	2 6

27	How many two-digit numbers are there where the ones digit is greater than the tens digit?	6 2
28	Write the following decimal number in binary: 90	6 0
29	How many triangles are in the picture below? 	2 1

30	<p>Which number is larger?          Binary: 1011110          Roman numerals: XCIII</p>	7 3										
31	<p>What is the rule of the following table?</p> <table border="1"> <thead> <tr> <th>Input</th> <th>Output</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>3</td> </tr> <tr> <td>2</td> <td>5</td> </tr> <tr> <td>3</td> <td>6</td> </tr> <tr> <td>7</td> <td>10</td> </tr> </tbody> </table>	Input	Output	0	3	2	5	3	6	7	10	1 1
Input	Output											
0	3											
2	5											
3	6											
7	10											
32	<p>Right now, Mary is five times as old as her sister Li. In 6 years, she will be twice as old as Li. How old will Mary be in 10 years?</p>	6 1										

33	<p>Draw the projections from the top and right of this solid:</p> 	6 3
34	<p>Imagine a rook race game with three rooks, played by only two people. All three rooks start on the first tile and can only move to the right. In order to win you must be the player to place the last rook on the last tile. Which player do you want to be and what is your strategy to win? Can you always win?</p>	0 0
35	<p>We place the signs +, – and = in between these digits in such a way that an equality is formed. Where do we place the signs?</p> <p>5723278</p>	2 8

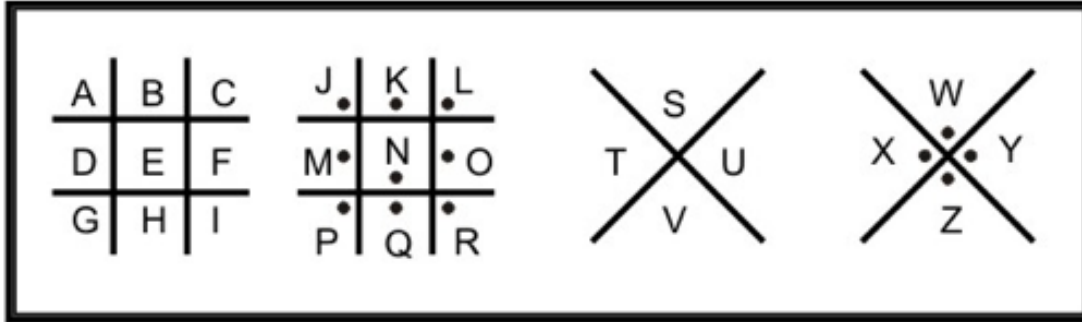
36	<p>What is the sum of the digits in the number 2009?</p>	0 1						
37	<p>Decode the following message using the modified Pigpen Cipher.</p>  <p>Modified Pigpen Cipher key:</p> <table border="1"> <tr> <td>I</td> <td>V</td> <td>X</td> </tr> <tr> <td>C</td> <td>M</td> <td>Q</td> </tr> </table>	I	V	X	C	M	Q	8 0
I	V	X						
C	M	Q						
38	<p>Convert MCMXIX to decimal notation.</p>	2 0						

39	Imagine a front projection of a combination of blocks entirely filled in and the left and right side projections have 2 blank squares on the top layer. How many different solids are there like this?	3 5
40	In a certain zoo, there were 50 total animals. There were 7 chimpanzees and 3 apes. The remainder animals were placed equally into 3 pens. How many animal(s) are left over?	2 4
41	Betty has 24 more candies than Jared. How many candies does Betty need to give Jared so they have the same number?	1 3

Decode the message written in pigpen cipher:



42



1|4

Sarah and Alfred have the same amount of strawberries, which is 12 less than what Andy has. How many should Andy give each of them so they all have the same amount of strawberries?

43

3|0

Jessica biked 20 miles. Laura biked two times that distance, plus another 9 miles. How many miles did Laura bike?

44

1|0

45	<p>Subtract these two binary numbers: <math>110110 - 11011 = ?</math> Write the answer in binary.</p>	$7 1$
46	<p>There are 3 siblings in the room: Allison, Bill, and Cassie.</p> <ul style="list-style-type: none"> <li>• Allison is 5 years older than Bill.</li> <li>• Bill is twice as old as Cassie.</li> <li>• Cassie is 1 year old.</li> </ul> <p>How old is Allison?</p>	$4 0$
47	<p>As Joey wrote on the board, he forgot a digit. What is the digit? Write the digit he forgot, as well as the correct equality.</p> <p><math>52 + 7 + 16 = 95.</math></p>	$1 9$



48

Find the area and perimeter of this shape. Note: it is not drawn to scale.

5 m, 3 m, 3 m, 2 m, 5 m, 6 m

5|5

49

Recall the Island of Knights and Liars. If you are confronted with two inhabitants, what question could you ask them each of them to find out what they are?

3|6

50

What is the area of one of the small rectangles?

30 cm, 20 cm

2|7