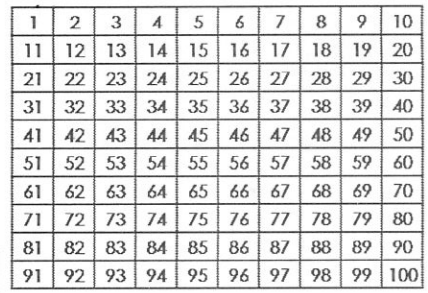
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

A number is divisible by 2 if...

it is even. (It ends with a 0, 2, 4, 6, or 8.)

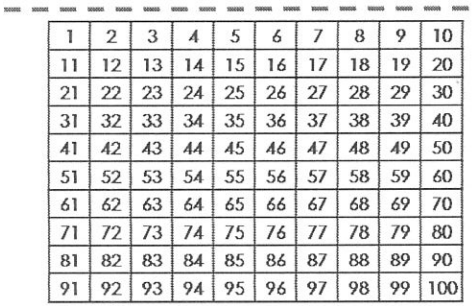
1. Add all the digits.
2. If the sum is divisible by 3, so is the number. (3, 6, 9, 12, 15,... - can use the hundreds chart to check)

Example: 645 = 6+4+5 = 15



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

A number is divisible by 3 if...

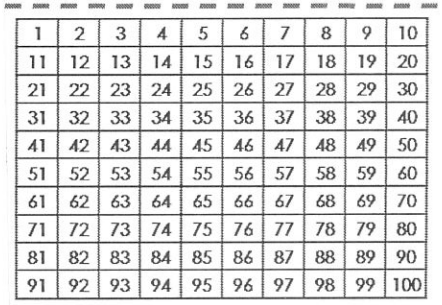


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

A number is divisible by 4 if...

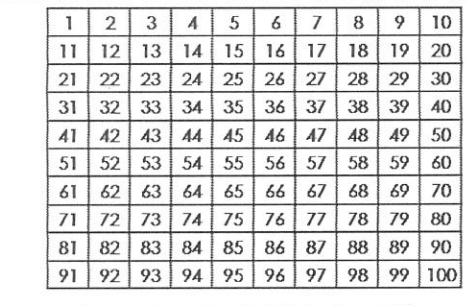
the last two digits are divisible by 4. (4, 8, 12, 16, 20,... - can use the hundreds chart to check)

it ends in a **5** or a **0**.



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

A number is divisible by 5 if...

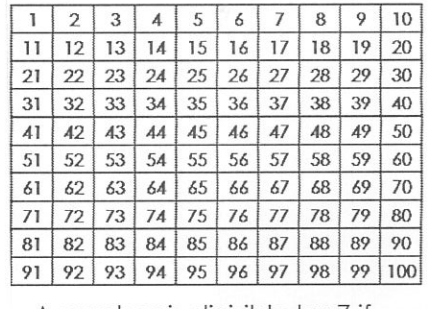


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

A number is divisible by 6 if...

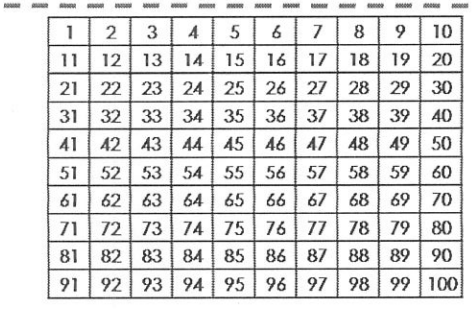
it is divisible by <u>BOTH</u> 2 and 3. Both rules have to work.

1. Take the last digit and double it.
2. Subtract that from the remaining numbers.
3. Repeat until you have 1 or 2 digits.
4. Is that number divisible by 7?
5. If so, do a quick mental math division to double check.



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

A number is divisible by 7 if...



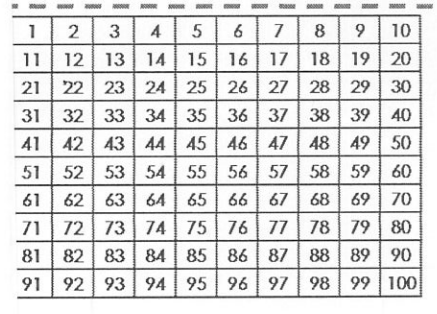
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

A number is divisible by 8 if...

the last three digits in the number are divisible by 8.

1. Add all the digits.
2. If the sum is divisible by 9, so is the number. (9, 18, 27, 45 ,... - can use the hundreds chart to check)

Example: 342 = 3+4+2 = 9



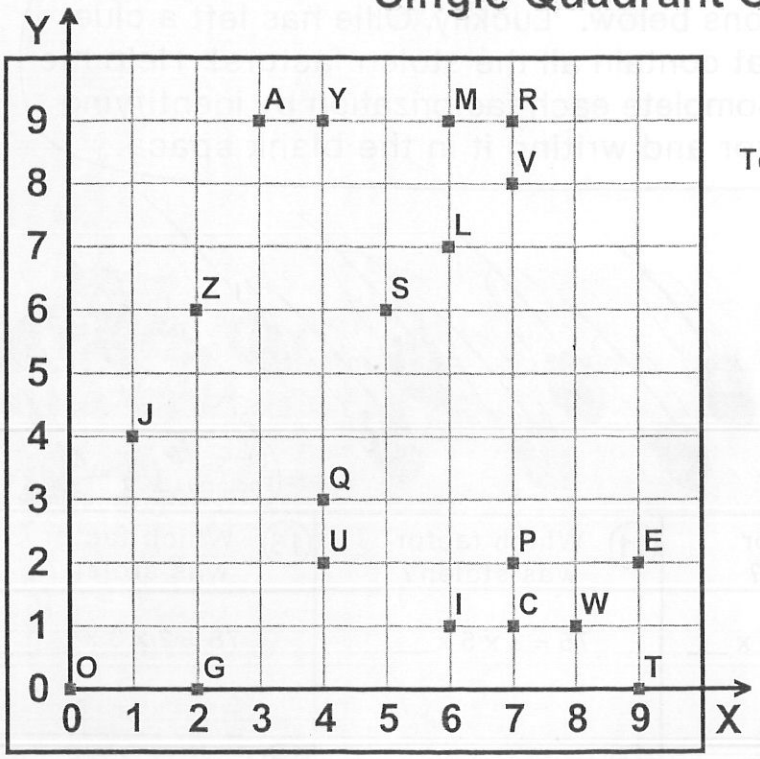
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

A number is divisible by 9 if...

Name : _____ Score : _____

Teacher : _____ Date : _____

Single Quadrant Ordered Pairs



Tell what point is located at each ordered pair.

1) (7,9) _____

2) (8,1) _____

3) (6,9) _____

4) (3,9) _____

5) (7,1) _____

6) (6,7) _____

7) (2,0) _____

8) (5,6) _____

9) (7,2) _____

10) (2,6) _____

Write the ordered pair for each given point.

11) T _____

12) J _____

13) Q _____

14) I _____

15) U _____

16) V _____

17) E _____

18) Y _____

19) O _____

Plot the following points on the coordinate grid.

20) D (6,4)

21) X (5,0)

22) F (2,1)

23) B (8,8)

24) N (5,1)

25) H (7,3)

Case of the Stolen Factors

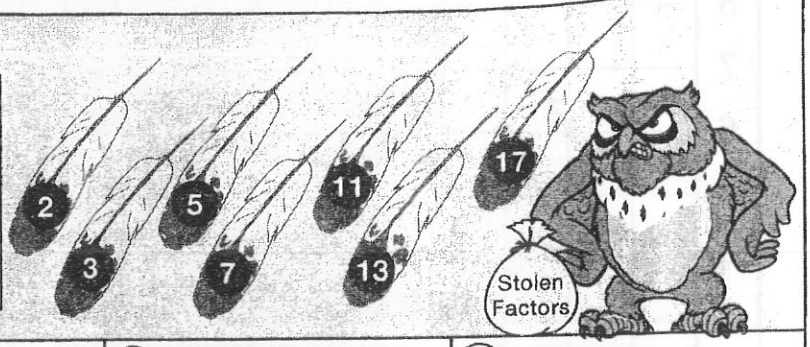
Ollie The Owl has stolen a factor from each of the twenty factorizations below. Luckily, Ollie has left a clue: several feathers that contain all the stolen factors! Help me solve this case. Complete each factorization by identifying the stolen factor and writing it in the blank space.

EXAMPLE:

Which factor was stolen?

12 = 2 x 2 x 3

2 x 3 = 6, 6 x (2) = 12



(1) Which factor was stolen? 18 = 2 x ___ x 3	(6) Which factor was stolen? 32 = 2 x 2 x 2 x 2 x ___	(11) Which factor was stolen? 75 = 3 x 5 x ___	(16) Which factor was stolen? 78 = 2 x 3 x ___
(2) Which factor was stolen? 45 = 3 x 3 x ___	(7) Which factor was stolen? 24 = 2 x 2 x 2 x ___	(12) Which factor was stolen? 110 = 2 x 5 x ___	(17) Which factor was stolen? 180 = 2 x ___ x 3 x 3 x 5
(3) Which factor was stolen? 28 = 2 x ___ x 7	(8) Which factor was stolen? 30 = 2 x 3 x ___	(13) Which factor was stolen? 66 = 2 x ___ x 11	(18) Which factor was stolen? 140 = 2 x 2 x 5 x ___
(4) Which factor was stolen? 44 = 2 x 2 x ___	(9) Which factor was stolen? 68 = 2 x 2 x ___	(14) Which factor was stolen? 70 = ___ x 5 x 7	(19) Which factor was stolen? 63 = 3 x ___ x 7
(5) Which factor was stolen? 42 = 2 x 3 x ___	(10) Which factor was stolen? 52 = 2 x 2 x ___	(15) Which factor was stolen? 170 = 2 x 5 x ___	(20) Which factor was stolen? 100 = 2 x 2 x ___ x 5

Prime and Composite Models (pp. 2 of 2)

Use the chart you created to answer the following questions:

(1) Which numbers have only 2 rectangles (PINK)? These numbers are **PRIME** numbers. Prime numbers have exactly 2 different factors, 1 and itself. List the prime numbers from the chart here.

(2) Which numbers have more than 2 rectangles (YELLOW)? These numbers are **COMPOSITE** numbers. Composite numbers have more than 2 factors. List the composite numbers from the chart here.

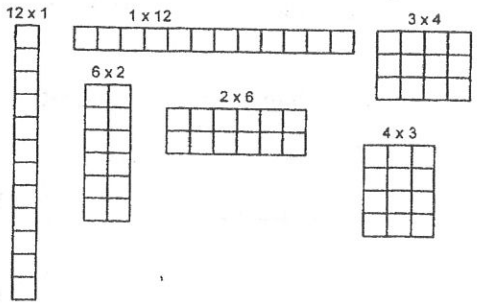
(3) Write all the factors of each number. Then circle either **PRIME** or **COMPOSITE** next to each number.

7	_____	**PRIME**	**COMPOSITE**
14	_____	**PRIME**	**COMPOSITE**
21	_____	**PRIME**	**COMPOSITE**
25	_____	**PRIME**	**COMPOSITE**
17	_____	**PRIME**	**COMPOSITE**
31	_____	**PRIME**	**COMPOSITE**
19	_____	**PRIME**	**COMPOSITE**
9	_____	**PRIME**	**COMPOSITE**
35	_____	**PRIME**	**COMPOSITE**
18	_____	**PRIME**	**COMPOSITE**
30	_____	**PRIME**	**COMPOSITE**
28	_____	**PRIME**	**COMPOSITE**

Prime and Composite Models (pp. 1 of 2)

Directions:

A. For each number 1- 20, create as many rectangles as possible. For each number, use that many squares on your grid.
Rectangles can be made horizontally or vertically. Sides must touch. HINT: Squares are rectangles too.
For example, 12 is a **COMPOSITE NUMBER**. It has rectangular models other than 1 and 12 and 12 and 1.



B. Record each number and its rectangles. Find the number of rectangles.
C. Cross-out the number in the number column that only has 1 rectangle.
D. Color the numbers in the number column that have exactly 2 rectangles PINK.
E. Color the numbers in the number column that have more than 2 rectangles YELLOW.

Number	Factors of Rectangles	Number of Rectangles Made
1		
2		
3		
4		
5		
6	1×6 6×1 3×2 2×3	4
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Sign of the Primes

Exactly 106 of the squares below contain prime numbers. Shade in each of these 106 squares.

2	7	6	19	59	9	89	48	41	65	23	13	5	22	61	53	79	87	11	12
3	28	15	71	84	10	97	99	37	80	83	44	17	63	47	35	71	94	29	82
31	67	27	7	51	95	5	53	41	63	97	60	61	18	19	24	89	4	71	98
50	13	86	3	69	64	47	32	83	35	59	70	17	39	73	33	67	93	23	12
31	2	25	11	37	81	29	68	7	30	5	17	83	88	13	2	3	9	11	31
43	92	79	61	57	74	90	89	5	46	37	71	97	30	31	73	3	51	67	87
29	55	11	76	9	70	46	83	15	69	43	4	17	95	53	20	41	49	2	80
7	24	29	13	75	59	21	67	84	18	19	63	41	40	5	58	83	6	73	8
31	77	99	59	81	93	36	3	48	98	13	88	89	12	47	68	2	90	11	27
61	42	37	71	78	35	94	17	97	18	43	19	67	25	79	3	23	86	7	5