Important Concepts . . .

Preview Review

Mathematics Grade 7

W1 - Lesson 1: Divisibility Rules

Important Concepts of Grade 7 Mathematics

Materials Required

Math set
Calculator

No Textbook Required

This is a stand-alone course.

Mathematics Grade 7
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Preview/Review Concepts for Grade Seven Mathematics

W1 – Lesson 1:

Divisibility Rules

W1 – Lesson 1: Divisibility Rules

Objective:

- *I can tell if a number can be divided by 2, 5, or 10.*

Looking for Divisibility Patterns

1. Circle any boxes with numbers that are multiples of 2. Do you see a pattern?

2. Put an X through any boxes with numbers that are multiples of 5. Do you see a pattern?

3. Colour any boxes with numbers that are multiples of 10. Do you see a pattern?

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, when the last digit is **EVEN**
- by 5, when the last digit is **0 or 5**
- by 10, when the last digit is **0**

If a number is divisible by 10, it is also divisible by _____ and _____.

2278 is a multiple of 2; 2278 is also divisible by 2.

Multiple of and **divisible by** are very similar!

Practice

Complete the chart. Put a (✓) if the number is divisible by 2, 5, or 10; put a (×) if it is **not**.

	2	5	10
540	✓	✓	✓
330			
1 432			
2 256			
58 125			
950			
6 395			

Objective:

- *I can tell if a number can be divided by 4 and 8.*

A number is divisible

- by **4**, when the **last two digits** are a multiple of **4**
- by **8**, when the **last three digits** are a multiple of **8**

If a number is divisible by 4, it is also always divisible by _____.

If a number is divisible by 8, it is also always divisible by _____ and _____.

Practice

Complete the chart. Put a (✓) if the number is divisible by 2, 4, or 8; put a (×) if it is **not**.

	2	4	8
2012	✓	✓	✓
330			
1 432			
2 140			
58 125			
720			
6 397			

Example: 2012

- 2 is even, 2012 is divisible by 2
- 12 is 4×3, 2012 is divisible by 4
- 2012 is not divisible by 8

Hint: Putting a number in overlapping parts of the loops means the number is divisible by both or by all.

Venn Diagram

Draw a Venn diagram with three loops. Label the loops "divisible by 2", "divisible by 4", and "divisible by 8".

Put these numbers into the Venn Diagram.

26, 48, 224, 460, 1046, 1088, 1784

Objective:

- *I can tell if a number can be divided by 3, 6, and 9.*

A number is divisible

- by **3**, when the sum of the digits are a multiple of **3**
- by **6**, when it is also divisible by **2 and 3**
- by **9**, when the sum of the digits are a multiple of **9**

If a number is divisible by 9, it is also always divisible by _____.

Practice

Complete the chart. Put a (✓) if the number is divisible by 2, 3, 6, or 9; put a (×) if it is **not**.

	2	4	8	9
4410	✓	✓	✓	✓
721				
1 527				
2 240				
58 125				
720				
6 396				

Carroll Diagram

Sort the following numbers into the proper position on the chart.

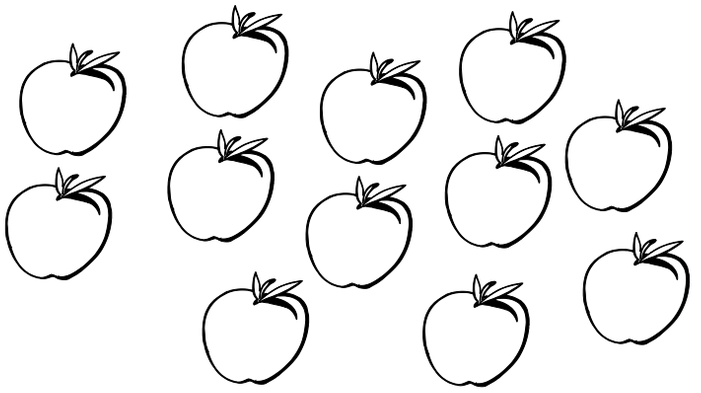
24, 32, 55, 72, 252, 1104, 1248, 9116, 11 337

	Divisible by 3	Not Divisible by 3
Divisible by 4		
Not Divisible by 4		

Objective:

- *I can explain why a number is never divisible by 0.*

Twelve apples are on a table. If 3 people sit at the table, how many apples can each person have?



12 ÷ 3 = _____

What if no one sits at the table?

12 ÷ 0 = _____

A guide needs to take 8 people across a river. How many times will he have to travel back and forth if the boat can take 2 passengers at a time?

8 ÷2 = _____

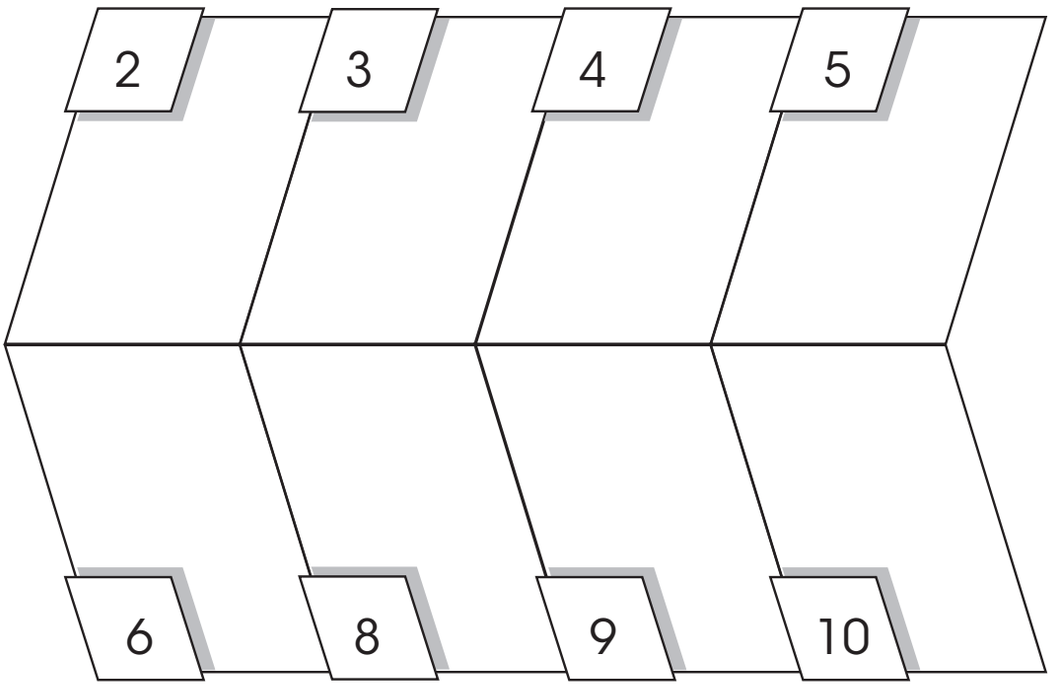
How many times would it take if the boat could fit only the guide?

8 ÷ 0 = _____

Summary and Practice:

- *Using what you learned answer the following questions*

1. In your own words, write the correct divisibility rule in each section.



Divisibility Rules

2. Write T if the statement is true or F if the statement is false:

   _____ a. A number divisible by 9 is also divisible by 3.

   _____ b. A number divisible by 4 is also divisible by 2.

   _____ c. A number divisible by 5 is also divisible by 10.

3. Explain, using divisibility rules, how you know the number 5439 is a multiple of 3 but not a multiple of 9?

4. Complete the chart. Put a (✓) if the number is divisible by 2, 3, 6, or 9; put a (×) if it is **not**.

	2	**3**	**4**	**5**	**6**	**8**	**9**	**10**
4 410	✓	✓	×	✓	✓	×	✓	✓
34								
645								
1 458								
2 823								
7 420								
6 396								

5. Use the digits 0 to 9. Replace the __ in each number to make a number divisible by 4. Find as many answers as you can.

   a. 592___ b. 771 5___8 c. 95 ___16

6. What is the largest 4-digit number divisible by 5? How did you arrive at this number?

7. Write a five-digit number that is divisible by 3 and 5. Explain how you came up with your number.

8. If a number is divisible by 6 and 10, what is the smallest number other than 1 that it is also divisible by? How do you know?

9. Sam is babysitting 4 toddlers. He has 224 jellybeans in a bag. With 4 crying kids hanging off him, how could Sam use divisibility rules to decide quickly if the jellybeans could be split evenly 4 ways?

10. Andrew and Matthew discuss divisibility.

Andrew says, "280 is divisible by 5 and by 8.
$5 \times 8 = 40$, so 280 is also divisible by 40."

Matthew says, "296 is divisible by 4 and by 8.
$4 \times 8 = 32$, so 296 is also divisible by 32."

Are both Andrew and Matthew correct?

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