Name _____ Date _____ Class _____

SKILL 1: Factors and Divisibility

Numbers that are multiplied are called **factors.** In $3 \times 8 = 24$, 3 and 8 are the factors. The product, 24, is divisible by each of its factors. When you divide a whole number by one of its factors, the remainder is 0.

To find the factors of a number, you can use divisibility rules. A divisibility rule is a shortcut for determining when one number is divisible by another.

A whole number is divisible by:

- **2** if the ones digit is 0, 2, 4, 6, or 8.
- **3** if the sum of the digits is divisible by 3.
- **5** if the ones digit is 0 or 5.
- **6** if the number is divisible by both 2 and 3.
- **10** if the ones digit is 0.

Example 1

Find the factors of 24.

List all the ways that you could multiply two numbers to get 24.

$1 \times 24 = 24$ $2 \times 12 = 24$ $3 \times 8 = 24$ $4 \times 6 = 24$

The factors of 24 are: 1, 2, 3, 4, 6, 8, 12, 24.

Example 2

By which of these numbers is 78 divisible: 2, 3, 5, 6, or 10?

The ones digit is 8. So, 78 is divisible by 2.

Since $7 + 8 = 15$, and 15 is divisible by 3, 78 is divisible by 3.

Because 78 is divisible by 2 and 3, it is divisible by 6.

The ones digit is not 0 or 5, so it is not divisible by 5 or by 10.

Guided Practice

Find the missing factors of 36.

1. $1 \times$ _____ $= 36$ **2.** $2 \times$ _____ $= 36$ **3.** $3 \times$ _____ $= 36$

4. $4 \times$ _____ $= 36$ **5.** $6 \times$ _____ $= 36$

6. The factors of 36 are: _____.

Write *yes* or *no* to indicate if 1,260 is divisible by the given number.

7. 2 _____ **8.** 3 _____ **9.** 4 _____ **10.** 5 _____

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SKILL 1: Practice

Answer each question.

1. Which of the following are factors of 16: 1, 2, 3, 4, 5, 6, 7, 8? _____
2. Which of the following are factors of 20: 1, 2, 3, 4, 5, 6, 7, 8? _____
3. List all factors of 28. _____
4. List all factors of 48. _____
5. List all factors of 100. _____

Complete the table. Write *yes* or *no*.

	Divisible by:				
	2	**3**	**5**	**6**	**10**
6. 28					
7. 40					
8. 72					
9. 144					
10. 225					
11. 360					
12. 504					
13. 600					

14. There are 365 days in a non-leap year.
By which of these numbers is 365 divisible: 2, 3, 5, 6, 10? _____

15. Which is not a factor of 54? *Skill 1*

A 6 **C** 9
B 7 **D** 27

16. Which is not divisible by 6? *Skill 1*

F 42 **H** 123
G 132 **J** 522