

Divisibility Patterns (pages 133–136)

A whole number is **divisible** by another whole number if the quotient is also a whole number. For example, 36 is divisible by 12 because the quotient $36 \div 12$ is the whole number 3. The whole number 3 is a **factor** of 36 since 36 is divisible by 3. Other factors of 36 are 1, 2, 4, 6, 9, 12, 18, and 36.

Determining Divisibility	<p>You can use the following rules to check divisibility.</p> <p>A number is divisible by</p> <ul style="list-style-type: none"> • 2 if the digit in the ones place is even. • 3 if the sum of the digits is divisible by 3. • 4 if the number formed by the last two digits is divisible by 4. • 5 if the digit in the ones place is 5 or 0. • 6 if the number is divisible by both 2 and 3. • 9 if the sum of the digits is divisible by 9. • 10 if the digit in the ones place is 0.
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EXAMPLES

A Is 474 divisible by 6?

Test for divisibility by 2. Is the digit in the ones place (4) even? Yes, so 474 is divisible by 2.

Test for divisibility by 3. Is the sum of the digits ($4 + 7 + 4$) divisible by 3? Is 15 divisible by 3?

Yes, so 474 is divisible by 3. Since 474 is divisible by both 2 and 3, 474 is divisible by 6.

(Check: $474 \div 6 = 79$)

B Is 330 divisible by 2, 3, 4, 5, 6, 9, or 10?

2: Yes, 0 is even.

3: Yes, $3 + 3 + 0 = 6$.

4: No, 30 is not divisible by 4.

5: Yes, ones digit is 0.

6: Yes, it is divisible by 2 and 3.

9: No, $3 + 3 + 0$, or 6, is not divisible by 9.

10: Yes, ones digit is 0.

Try These Together

1. Is 510 divisible by 10?

HINT: Look at the last digit.

2. Is 505 divisible by 2, 3, 4, 5, 6, 9, or 10?

HINT: Apply each test, one at a time.

PRACTICE

Determine whether the first number is divisible by the second number.

3. 319; 3

4. 246; 2

5. 315; 3

6. 819; 9

7. 151; 6

8. 128; 4

9. 655; 5

10. 216; 6

Determine whether each number is divisible by 2, 3, 4, 5, 6, 9, or 10.

11. 224

12. 460

13. 720

14. 364

15. 231

16. 426

17. 884

18. 855



19. Standardized Test Practice Which of the following numbers is divisible by 3 and 4?

A 242

B 616

C 324

D 183

Answers: 1. yes 2. 5 3. no 4. yes 5. yes 6. yes 7. no 8. yes 9. yes 10. yes 11. 2, 4 12. 2, 4, 5, 10 13. 2, 3, 4, 5, 6, 9, 10 14. 2, 4 15. 3 16. 2, 3, 6 17. 2, 4 18. 3, 5, 9 19. C