

## Even and Odd Numbers

An even number can be split into two equal groups with nothing left over. An odd number cannot — there is always one leftover. And here is the shortcut: only the last digit matters.

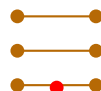
<b>Even numbers</b>	End in 0, 2, 4, 6, 8
<b>Odd numbers</b>	End in 1, 3, 5, 7, 9

**Even: 6**



All paired!

**Odd: 7**



1 left over!

### Key Concepts

1. A number is **even** when you can split it into two equal groups with none left over — in other words, when 2 divides into it cleanly.
2. A number is **odd** when splitting it into two groups always leaves one behind. There is no way to fix this — an odd number simply does not pair up evenly.
3. You only need to look at the *ones* digit to decide. The thousands, hundreds, and tens places do not change whether a number is even or odd.
4. Some useful patterns: Even + Even = Even, Odd + Odd = Even, Even + Odd = Odd. Two odds combine to an even because the two “leftovers” pair up!

### Worked Examples

① Is 258 even or odd?

👉 Ignore all the digits except the very last one — the ones digit. In 258, that is the 8. Since 8 is an even digit (it ends in 0, 2, 4, 6, or 8), the whole number 258 is even.

💡 **Answer:** *Even*

② Is 4,037 even or odd?

👉 Don't be tricked by the size of the number. Look only at the ones digit: 7. Since 7 is odd, the whole number 4,037 is odd. The thousands, hundreds, and tens places never enter the picture.

💡 **Answer:** *Odd*

③ Sara has 15 stickers. Can she share them equally between 2 friends with none left over?

👉 Try the split:  $15 \div 2 = 7$ , with 1 left over. Because there is a leftover, 15 is *odd*. Each friend gets 7 stickers and one sticker has nowhere to go. (You could also have spotted this right away: the ones digit of 15 is 5, which is odd.)

💡 **Answer:** *No — 15 is odd, so 1 sticker is left over.*

 **Practice Problems**

Write “even” or “odd” for each number.

- |                                |                                      |
|--------------------------------|--------------------------------------|
| 1. Is 34 even or odd? _____    | 7. $12 + 15 = ?$ Even or odd? _____  |
| 2. Is 91 even or odd? _____    | 8. $24 + 36 = ?$ Even or odd? _____  |
| 3. Is 120 even or odd? _____   | 9. $7 + 8 = ?$ Even or odd? _____    |
| 4. Is 567 even or odd? _____   | 10. Is 1,000 even or odd? _____      |
| 5. Is 2,004 even or odd? _____ | 11. $19 + 19 = ?$ Even or odd? _____ |
| 6. Is 3,779 even or odd? _____ | 12. Is 4,856 even or odd? _____      |

**Study Tips**

-  Only the **last digit** matters. 3,482 is even because its ones digit, 2, is even.
-  If you forget the rule, try pairing physical objects (coins, beans, pencils). When there is nothing left over, the count is even.
-  Memorize the even endings: 0, 2, 4, 6, 8. Everything else is odd.

 **Word Problems**

1. Mrs. Lee has 28 crayons. She wants to put them in 2 equal groups. Can she do this with none left over? Explain.

Answer: \_\_\_\_\_



2. There are 153 marbles in a jar. Is the number of marbles even or odd? How do you know?

Answer: \_\_\_\_\_

**Answer Key — with Friendly Explanations****Practice Problems**

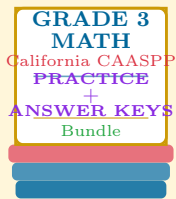
1. Ones digit is 4 — even.  **Answer:** *Even*
2. Ones digit is 1 — odd.  **Answer:** *Odd*
3. Ones digit is 0 — even.  **Answer:** *Even*
4. Ones digit is 7 — odd.  **Answer:** *Odd*
5. Ones digit is 4 — even.  **Answer:** *Even*
6. Ones digit is 9 — odd.  **Answer:** *Odd*
7. Even + Odd = Odd. ( $12 + 15 = 27$ , ones digit 7.)  **Answer:** *27 — Odd*
8. Even + Even = Even. ( $24 + 36 = 60$ , ones digit 0.)  **Answer:** *60 — Even*
9. Odd + Even = Odd. ( $7 + 8 = 15$ , ones digit 5.)  **Answer:** *15 — Odd*
10. Ones digit is 0 — even.  **Answer:** *Even*
11. Odd + Odd = Even. The two “leftovers” pair up. ( $19 + 19 = 38$ , ones digit 8.)  **Answer:** *38 — Even*
12. Ones digit is 6 — even.  **Answer:** *Even*

**Word Problems**

1. Yes. 28 ends in 8 (even), so it splits evenly.  $28 \div 2 = 14$  crayons per group, no leftover.  **Answer:** *Yes (14 + 14)*
2. Odd. The ones digit, 3, tells you that 153 cannot be split evenly into two groups.  **Answer:** *Odd*

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