

# Even Numbers as Equal Addends

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_ / 24

## Q Quick Review

Every **even** number can be written as a **double** — two equal numbers added together. For example,  $8 = 4 + 4$  and  $10 = 5 + 5$ . To find the double, split the even number into two equal groups; each group is one of the **addends**. This is a great way to prove a number is even: if you *can* write it as an equal double, it is even. Odd numbers cannot be written this way — there is always one left over.

◇ **Example:** Write 14 as a double (two equal addends).

⇒ We want two equal numbers that add up to 14. Let's split 14 into two equal groups. Half of 14 is 7, because  $7 + 7 = 14$ . So the two equal addends are both 7. That tells us 14 is even, since it splits evenly.

**Answer:**  $14 = 7 + 7$

## PRACTICE

Write each even number as a double of two equal addends.

- |  |       |   |       |
|--|-------|---|-------|
| 1. Write 4 as a double: _____ + _____.   | _____ | 11. What is $5 + 5$ ?                     | _____ |
| 2. Write 6 as a double: _____ + _____.   | _____ | 12. What is $7 + 7$ ?                     | _____ |
| 3. Write 8 as a double: _____ + _____.   | _____ | 13. What is $9 + 9$ ?                     | _____ |
| 4. Write 10 as a double: _____ + _____.  | _____ | 14. What is $6 + 6$ ?                     | _____ |
| 5. Write 12 as a double: _____ + _____.  | _____ | 15. What is $8 + 8$ ?                     | _____ |
| 6. Write 16 as a double: _____ + _____.  | _____ | 16. Can 7 be written as an equal double?  | _____ |
| 7. Write 18 as a double: _____ + _____.  | _____ | 17. Can 10 be written as an equal double? | _____ |
| 8. Write 20 as a double: _____ + _____.  | _____ | 18. Can 13 be written as an equal double? | _____ |
| 9. Write 2 as a double: _____ + _____.   | _____ | 19. Write 24 as a double: _____ + _____.  | _____ |
| 10. Write 14 as a double: _____ + _____. | _____ | 20. Can 16 be written as an equal double? | _____ |

## ◆ Word Problems

21. Ben has 12 marbles. He puts the same number in each of his two hands. How many marbles are in each hand? \_\_\_\_\_
22. Two friends share 18 grapes equally. How many grapes does each friend get? \_\_\_\_\_
23. Lily folds 20 napkins into two equal stacks. How many napkins are in each stack? \_\_\_\_\_
24. A box holds 8 crayons. Show 8 as two equal addends to prove the number is even. \_\_\_\_\_



## Answer Keys

- |              |                  |
|--------------|------------------|
| 1. $2 + 2$   | 13. $18$         |
| 2. $3 + 3$   | 14. $12$         |
| 3. $4 + 4$   | 15. $16$         |
| 4. $5 + 5$   | 16. <i>no</i>    |
| 5. $6 + 6$   | 17. <i>yes</i>   |
| 6. $8 + 8$   | 18. <i>no</i>    |
| 7. $9 + 9$   | 19. $12 + 12$    |
| 8. $10 + 10$ | 20. <i>yes</i>   |
| 9. $1 + 1$   | 21. $6$ marbles  |
| 10. $7 + 7$  | 22. $9$ grapes   |
| 11. $10$     | 23. $10$ napkins |
| 12. $14$     | 24. $8 = 4 + 4$  |

### Step-by-Step Explanations

- |   |   |
|---|---|
| <p>1. Half of 4 is 2, so <math>4 = 2 + 2</math>.</p> <p>2. Half of 6 is 3, so <math>6 = 3 + 3</math>.</p> <p>3. Half of 8 is 4, so <math>8 = 4 + 4</math>.</p> <p>4. Half of 10 is 5, so <math>10 = 5 + 5</math>.</p> <p>5. Half of 12 is 6, so <math>12 = 6 + 6</math>.</p> <p>6. Half of 16 is 8, so <math>16 = 8 + 8</math>.</p> <p>7. Half of 18 is 9, so <math>18 = 9 + 9</math>.</p> <p>8. Half of 20 is 10, so <math>20 = 10 + 10</math>.</p> <p>9. Half of 2 is 1, so <math>2 = 1 + 1</math>.</p> <p>10. Half of 14 is 7, so <math>14 = 7 + 7</math>.</p> <p>11. <math>5 + 5 = 10</math>, so 10 is the double of 5.</p> <p>12. <math>7 + 7 = 14</math>, so 14 is the double of 7.</p> | <p>13. <math>9 + 9 = 18</math>, so 18 is the double of 9.</p> <p>14. <math>6 + 6 = 12</math>, so 12 is the double of 6.</p> <p>15. <math>8 + 8 = 16</math>, so 16 is the double of 8.</p> <p>16. 7 is odd, so it cannot split into two equal addends.</p> <p>17. 10 is even and <math>10 = 5 + 5</math>, so yes.</p> <p>18. 13 is odd, so it cannot split into two equal addends.</p> <p>19. Half of 24 is 12, so <math>24 = 12 + 12</math>.</p> <p>20. 16 is even and <math>16 = 8 + 8</math>, so yes.</p> <p>21. 12 is even, so <math>12 = 6 + 6</math>. Ben holds 6 marbles in each hand.</p> <p>22. 18 is even, so <math>18 = 9 + 9</math>. Each friend gets 9 grapes.</p> <p>23. 20 is even, so <math>20 = 10 + 10</math>. Each stack has 10 napkins.</p> <p>24. Half of 8 is 4, so <math>8 = 4 + 4</math>. Since it makes an equal double, 8 is even.</p> |
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