

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. $8 = 4 + 4$ |

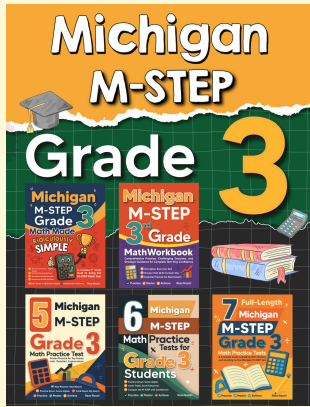
Step-by-Step Explanations

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



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