PLANTUnderstanding Addition and Subtraction as Inverse Operations

Introduction to Inverse Operations

Welcome to this interactive worksheet on understanding addition and subtraction as inverse operations! In this activity, you will learn how to apply these concepts to real-life scenarios and develop your problemsolving skills.

Inverse operations are two operations that "undo" each other. For example, addition and subtraction are inverse operations because they have opposite effects. Can you think of other examples of inverse operations?

Activity 1: Matching Game

Match the following addition and subtraction problems to their inverse operations:

1. 2 + 3 = ? 2. 5 - 2 = ? 3. 1 + 4 = ? 4. 9 - 3 = ?

Answers:

1. 2 + 3 = 5 (inverse operation: 5 - 3 = 2) 2. 5 - 2 = 3 (inverse operation: 3 + 2 = 5) 3. 1 + 4 = 5 (inverse operation: 5 - 4 = 1) 4. 9 - 3 = 6 (inverse operation: 6 + 3 = 9)

Real-Life Examples

Read the following scenarios and apply inverse operations to solve the problems:

- 1. Tom has 5 pencils in his pencil case. He adds 2 more pencils. How many pencils does Tom have now? If he then gives 1 pencil to his friend, how many pencils does he have left?
- 2. Sarah has 8 crayons in her box. She subtracts 2 crayons. How many crayons does Sarah have left? If she then adds 1 more crayon, how many crayons does she have now?

Answers:

- 1. Tom has 5 + 2 = 7 pencils. If he gives 1 pencil to his friend, he has 7 1 = 6 pencils left.
- 2. Sarah has 8 2 = 6 crayons. If she adds 1 more crayon, she has 6 + 1 = 7 crayons.

Word Problems

Solve the following word problems using inverse operations:

- 1. A bookshelf has 10 books on it. If 2 more books are added, how many books are on the bookshelf now? If 1 book is then removed, how many books are left?
- 2. A bakery has 15 cupcakes in a display case. If 3 cupcakes are sold, how many cupcakes are left? If 2 more cupcakes are then added, how many cupcakes are in the display case now?

Answers:

- 1. The bookshelf has 10 + 2 = 12 books. If 1 book is removed, there are 12 1 = 11 books left.
- 2. The bakery has 15 3 = 12 cupcakes. If 2 more cupcakes are added, there are 12 + 2 = 14 cupcakes in the display case.

Number Line

Use the number line to solve the following problems:

- 1. Start at 5 and add 2. What number do you land on?
- 2. Start at 9 and subtract 3. What number do you land on?

Answers:

- 1. Start at 5 and add 2: 5 + 2 = 7
- 2. Start at 9 and subtract 3:9 3 = 6

Hundreds Chart

Use the hundreds chart to solve the following problems:

- 1. Start at 50 and add 10. What number do you land on?
- 2. Start at 75 and subtract 5. What number do you land on?

Answers:

- 1. Start at 50 and add 10: 50 + 10 = 60
- 2. Start at 75 and subtract 5: 75 5 = 70

Real-Life Scenarios

Read the following scenarios and apply inverse operations to solve the problems:

- 1. A student has 12 pencils in their pencil case. They add 4 more pencils. How many pencils do they have now? If they then give 2 pencils to their friend, how many pencils do they have left?
- 2. A store has 20 boxes of crayons on a shelf. They sell 5 boxes. How many boxes of crayons are left? If they then receive 3 more boxes, how many boxes of crayons do they have now?

Answers:

- 1. The student has 12 + 4 = 16 pencils. If they give 2 pencils to their friend, they have 16 2 = 14 pencils left.
- 2. The store has 20 5 = 15 boxes of crayons. If they receive 3 more boxes, they have 15 + 3 = 18 boxes of crayons.

Challenge Problems

Solve the following challenge problems using inverse operations:

- 1. A water bottle has 18 ounces of water. If 4 ounces are added, how many ounces of water are in the bottle now? If 2 ounces are then poured out, how many ounces of water are left?
- 2. A library has 25 books on a shelf. If 7 books are removed, how many books are left? If 3 more books are then added, how many books are on the shelf now?

Answers:

- 1. The water bottle has 18 + 4 = 22 ounces of water. If 2 ounces are poured out, there are 22 2 = 20 ounces of water left.
- 2. The library has 25 7 = 18 books. If 3 more books are added, there are 18 + 3 = 21 books on the shelf.



Review

Review the following concepts:

- 1. Inverse operations are two operations that "undo" each other.
- 2. Addition and subtraction are inverse operations.
- 3. Real-life examples can be used to illustrate inverse operations.

Reflection

Individual Reflection:

1. What was the most surprising thing you learned about inverse operations?

2. How will this learning change your actions in the future?

3. What questions do you still have about inverse operations?

Conclusion

Congratulations on completing this interactive worksheet on understanding addition and subtraction as inverse operations! You have learned how to apply these concepts to real-life scenarios and develop your problem-solving skills.

Remember to practice and reinforce your understanding of inverse operations to become a math master!