

# ANNA BOUGHT $2\frac{3}{5}$ LB OF GRAPES AND SANIKA BOUGHT $\frac{1}{2}$ LB LESS THAN ANNA. HOW MANY POUNDS OF GRAPES DID

ANNA BOUGHT  $2\frac{3}{5}$  LB OF GRAPES AND SANIKA BOUGHT  $\frac{1}{2}$  LB LESS THAN ANNA. HOW MANY POUNDS OF GRAPES DID THIS QUESTION INVOLVE? UNDERSTANDING THE QUANTITIES OF GRAPES PURCHASED BY ANNA AND SANIKA REQUIRES BASIC MATHEMATICAL CALCULATIONS, SPECIFICALLY INVOLVING MIXED NUMBERS AND FRACTIONS. IN THIS ARTICLE, WE WILL EXPLORE HOW TO CONVERT MIXED NUMBERS INTO IMPROPER FRACTIONS, PERFORM SUBTRACTION WITH FRACTIONS, AND INTERPRET THE RESULTS TO FIND OUT THE EXACT WEIGHT OF GRAPES SANIKA BOUGHT. WHETHER YOU'RE A STUDENT PRACTICING FRACTIONS OR SOMEONE INTERESTED IN SIMPLE WORD PROBLEMS, THIS GUIDE WILL HELP CLARIFY THE PROCESS STEP-BY-STEP.

## UNDERSTANDING THE PROBLEM: BREAKING DOWN THE QUESTION

BEFORE DIVING INTO CALCULATIONS, IT IS ESSENTIAL TO CLEARLY UNDERSTAND WHAT THE PROBLEM IS ASKING. THE STATEMENT INVOLVES TWO KEY PIECES OF INFORMATION:

- ANNA BOUGHT  $2\frac{3}{5}$  POUNDS OF GRAPES.
- SANIKA BOUGHT  $\frac{1}{2}$  POUND LESS THAN ANNA.

THE QUESTION THEN ASKS: HOW MANY POUNDS OF GRAPES DID SANIKA BUY? TO ANSWER THIS, WE NEED TO SUBTRACT  $\frac{1}{2}$  FROM  $2\frac{3}{5}$ .

## CONVERTING MIXED NUMBERS AND FRACTIONS

BEFORE PERFORMING THE SUBTRACTION, IT HELPS TO CONVERT MIXED NUMBERS INTO IMPROPER FRACTIONS, WHICH ARE EASIER TO WORK WITH IN CALCULATIONS.

### CONVERTING $2\frac{3}{5}$ TO AN IMPROPER FRACTION

TO CONVERT  $2\frac{3}{5}$ :

1. MULTIPLY THE WHOLE NUMBER (2) BY THE DENOMINATOR (5):  $2 \times 5 = 10$ .
2. ADD THE NUMERATOR (3):  $10 + 3 = 13$ .
3. PLACE THIS RESULT OVER THE ORIGINAL DENOMINATOR:  $\frac{13}{5}$ .

THUS,  $2\frac{3}{5} = \frac{13}{5}$ .

## EXPRESSING $\frac{1}{2}$ AS AN IMPROPER FRACTION

SINCE  $\frac{1}{2}$  IS ALREADY A PROPER FRACTION, IT REMAINS AS:

$$\frac{1}{2}$$

BUT FOR SUBTRACTION, BOTH FRACTIONS NEED TO HAVE A COMMON DENOMINATOR.

## FINDING A COMMON DENOMINATOR AND SUBTRACTING

TO SUBTRACT  $\frac{1}{2}$  FROM  $\frac{13}{5}$ , THE FRACTIONS MUST HAVE THE SAME DENOMINATOR.

## CALCULATING THE LEAST COMMON DENOMINATOR (LCD)

THE DENOMINATORS ARE 5 AND 2.

- FACTORS OF 5: 5
- FACTORS OF 2: 2
- LEAST COMMON MULTIPLE (LCM) OF 5 AND 2 IS 10.

SO, THE LCD IS 10.

## CONVERTING FRACTIONS TO EQUIVALENT FRACTIONS

NOW, CONVERT EACH TO AN EQUIVALENT FRACTION WITH DENOMINATOR 10:

1.  $\frac{13}{5}$ : MULTIPLY NUMERATOR AND DENOMINATOR BY 2:

$$\frac{13}{5} = \frac{(13 \times 2)}{(5 \times 2)} = \frac{26}{10}$$

2.  $\frac{1}{2}$ : MULTIPLY NUMERATOR AND DENOMINATOR BY 5:

$$\frac{1}{2} = \frac{(1 \times 5)}{(2 \times 5)} = \frac{5}{10}$$

## PERFORMING THE SUBTRACTION

NOW, SUBTRACT:

$$\frac{26}{10} - \frac{5}{10} = \frac{(26 - 5)}{10} = \frac{21}{10}$$

THE RESULT,  $21/10$ , IS AN IMPROPER FRACTION.

## CONVERTING BACK TO A MIXED NUMBER

DIVIDE NUMERATOR BY DENOMINATOR:

-  $21 \div 10 = 2$  WITH A REMAINDER OF 1.

So,

$$21/10 = 2 \frac{1}{10}$$

SANIKA BOUGHT  $2 \frac{1}{10}$  POUNDS OF GRAPES.

## SUMMARY OF THE CALCULATION PROCESS

LET'S REVIEW THE STEPS:

- CONVERTED  $2 \frac{3}{5}$  TO AN IMPROPER FRACTION:  $13/5$ .
- CONVERTED  $1/2$  TO AN EQUIVALENT FRACTION WITH DENOMINATOR 10:  $5/10$ .
- CONVERTED  $13/5$  TO  $26/10$ .
- SUBTRACTED  $5/10$  FROM  $26/10$  TO GET  $21/10$ .
- CONVERTED  $21/10$  TO A MIXED NUMBER:  $2 \frac{1}{10}$ .

THEREFORE, SANIKA BOUGHT  $2 \frac{1}{10}$  POUNDS OF GRAPES.

## ADDITIONAL TIPS FOR SOLVING SIMILAR WORD PROBLEMS

IF YOU ENCOUNTER SIMILAR PROBLEMS INVOLVING FRACTIONS AND MIXED NUMBERS, KEEP THESE TIPS IN MIND:

### 1. ALWAYS CONVERT MIXED NUMBERS TO IMPROPER FRACTIONS FIRST.

THIS SIMPLIFIES THE PROCESS OF ADDITION AND SUBTRACTION.

### 2. FIND A COMMON DENOMINATOR BEFORE PERFORMING ANY OPERATIONS.

THIS ENSURES FRACTIONS ARE COMPARABLE AND CAN BE SUBTRACTED OR ADDED DIRECTLY.

### 3. SIMPLIFY YOUR ANSWER WHEN POSSIBLE.

EXPRESS IMPROPER FRACTIONS AS MIXED NUMBERS FOR CLARITY, ESPECIALLY IN REAL-WORLD CONTEXTS LIKE WEIGHTS OR MEASUREMENTS.

## REAL-WORLD APPLICATIONS OF FRACTION WORD PROBLEMS

UNDERSTANDING HOW TO WORK WITH FRACTIONS IN WORD PROBLEMS IS ESSENTIAL BEYOND MATH CLASS. FOR EXAMPLE:

- SHOPPING AND CALCULATING DISCOUNTS OR TOTAL WEIGHTS.
- COOKING MEASUREMENTS INVOLVING FRACTIONAL CUPS OR SPOONS.
- DIVIDING RESOURCES OR QUANTITIES AMONG PEOPLE OR GROUPS.

MASTERING THESE SKILLS ENABLES PRACTICAL DECISION-MAKING AND PROBLEM-SOLVING IN EVERYDAY LIFE.

## CONCLUSION: FINAL ANSWER AND RECAP

IN CONCLUSION, WHEN ANNA BOUGHT  $2 \frac{3}{5}$  POUNDS OF GRAPES AND SANIKA BOUGHT  $\frac{1}{2}$  POUND LESS THAN ANNA, SANIKA BOUGHT  $2 \frac{1}{10}$  POUNDS OF GRAPES. THIS CALCULATION INVOLVED CONVERTING MIXED NUMBERS TO IMPROPER FRACTIONS, FINDING A COMMON DENOMINATOR, PERFORMING SUBTRACTION, AND CONVERTING BACK TO A MIXED NUMBER. WHETHER YOU'RE TACKLING HOMEWORK PROBLEMS OR MANAGING REAL-WORLD MEASUREMENTS, UNDERSTANDING THESE STEPS IS FUNDAMENTAL TO WORKING EFFECTIVELY WITH FRACTIONS.

SUMMARY:

- ANNA'S GRAPES:  $2 \frac{3}{5} \text{ LBS} = \frac{13}{5}$
- SANIKA'S GRAPES:  $\frac{13}{5} - \frac{1}{2} = 2 \frac{1}{10} \text{ LBS}$

BY MASTERING THESE STEPS, YOU CAN CONFIDENTLY SOLVE SIMILAR FRACTION-BASED WORD PROBLEMS AND ENHANCE YOUR MATHEMATICAL LITERACY.

## FREQUENTLY ASKED QUESTIONS

### HOW MUCH GRAPES DID ANNA BUY IN POUNDS?

ANNA BOUGHT  $2 \frac{3}{5}$  POUNDS OF GRAPES.

### HOW MUCH GRAPES DID SANIKA BUY IF SHE BOUGHT $\frac{1}{2}$ POUND LESS THAN ANNA?

SANIKA BOUGHT  $2 \frac{3}{5} - \frac{1}{2}$  POUNDS OF GRAPES, WHICH EQUALS  $2 \frac{1}{10}$  POUNDS.

### WHAT IS THE MIXED NUMBER FORM OF THE GRAPES SANIKA BOUGHT?

SANIKA BOUGHT  $2 \frac{1}{10}$  POUNDS OF GRAPES.

## CAN YOU CONVERT ANNA'S GRAPES FROM MIXED NUMBER TO IMPROPER FRACTION?

YES,  $2 \frac{3}{5}$  IS EQUAL TO  $\frac{13}{5}$ .

## WHAT IS THE TOTAL WEIGHT OF GRAPES BOTH ANNA AND SANIKA BOUGHT COMBINED?

COMBINED, THEY BOUGHT  $2 \frac{3}{5} + 2 \frac{1}{10}$  POUNDS OF GRAPES, WHICH SUMS TO  $4 \frac{7}{10}$  POUNDS.

## HOW DO YOU SUBTRACT $\frac{1}{2}$ FROM $2 \frac{3}{5}$ IN FRACTIONAL FORM?

CONVERT  $2 \frac{3}{5}$  TO AN IMPROPER FRACTION ( $\frac{13}{5}$ ), AND  $\frac{1}{2}$  TO  $\frac{5}{10}$  OR  $\frac{1}{2}$ , THEN FIND A COMMON DENOMINATOR AND SUBTRACT.

## WHAT IS THE IMPORTANCE OF CONVERTING MIXED NUMBERS TO IMPROPER FRACTIONS IN CALCULATIONS?

CONVERTING TO IMPROPER FRACTIONS MAKES ADDITION AND SUBTRACTION EASIER AND MORE ACCURATE.

## IF ANNA BOUGHT $2 \frac{3}{5}$ POUNDS OF GRAPES, HOW WOULD YOU EXPRESS THIS AS A DECIMAL?

$2 \frac{3}{5}$  EQUALS 2.6 POUNDS.

## IS THE CALCULATION OF SANIKA'S GRAPES STRAIGHTFORWARD AFTER KNOWING ANNA'S AMOUNT?

YES, SUBTRACTING  $\frac{1}{2}$  POUND FROM ANNA'S  $2 \frac{3}{5}$  POUNDS DIRECTLY GIVES SANIKA'S AMOUNT, SIMPLIFYING THE CALCULATION.

## ADDITIONAL RESOURCES

GRAPES PURCHASE ANALYSIS: A DEEP DIVE INTO ANNA AND SANIKA'S BUYING SCENARIO

UNDERSTANDING THE NUANCES OF EVERYDAY TRANSACTIONS, ESPECIALLY INVOLVING FRACTIONS AND QUANTITIES, CAN SEEM STRAIGHTFORWARD AT FIRST GLANCE BUT OFTEN REVEALS LAYERS OF MATHEMATICAL CONCEPTS AND PROBLEM-SOLVING STRATEGIES UPON CLOSER INSPECTION. IN THIS DETAILED REVIEW, WE EXPLORE THE SCENARIO INVOLVING ANNA AND SANIKA'S GRAPE PURCHASES, DISSECTING THE PROBLEM, PERFORMING CALCULATIONS, AND DISCUSSING THE BROADER IMPLICATIONS OF SUCH MATHEMATICAL EXERCISES.

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## INTRODUCTION: THE IMPORTANCE OF REAL-LIFE MATH APPLICATIONS

MATHEMATICS IS OFTEN PERCEIVED AS A PURELY ACADEMIC SUBJECT, BUT IT HAS PROFOUND PRACTICAL APPLICATIONS IN DAILY LIFE. WHETHER SHOPPING, BUDGETING, OR PLANNING, UNDERSTANDING FRACTIONS, ADDITION, SUBTRACTION, AND UNIT CONVERSIONS CAN SIGNIFICANTLY ENHANCE DECISION-MAKING.

THE SPECIFIC PROBLEM INVOLVING ANNA AND SANIKA'S GRAPE PURCHASES EXEMPLIFIES THESE APPLICATIONS:

- REAL-WORLD RELEVANCE: HOW MUCH DID EACH PERSON BUY?
- MATHEMATICAL SKILLS INVOLVED: FRACTIONS, BASIC ARITHMETIC, WORD PROBLEM INTERPRETATION.

- EDUCATIONAL VALUE: DEVELOPING PROBLEM-SOLVING AND REASONING SKILLS.

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## UNDERSTANDING THE PROBLEM STATEMENT

THE PROBLEM READS:

“ANNA BOUGHT  $2 \frac{3}{5}$  POUNDS OF GRAPES, AND SANIKA BOUGHT  $\frac{1}{2}$  POUND LESS THAN ANNA. HOW MANY POUNDS OF GRAPES DID THEY BUY IN TOTAL?”

BREAKING IT DOWN:

- ANNA’S PURCHASE:  $2 \frac{3}{5}$  POUNDS
- SANIKA’S PURCHASE:  $\frac{1}{2}$  POUND LESS THAN ANNA

THE KEY POINTS:

- THE QUANTITIES INVOLVE MIXED NUMBERS AND FRACTIONS.
- THE SUBTRACTION INVOLVES FRACTIONAL AMOUNTS.
- THE FINAL GOAL IS TO FIND THE TOTAL WEIGHT OF GRAPES PURCHASED BY BOTH.

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## DECIPHERING THE QUANTITIES: CONVERTING MIXED NUMBERS AND FRACTIONS

BEFORE PERFORMING CALCULATIONS, IT’S ESSENTIAL TO CONVERT MIXED NUMBERS TO IMPROPER FRACTIONS FOR CONSISTENCY AND EASE.

### CONVERTING ANNA’S PURCHASE

ANNA BOUGHT  $2 \frac{3}{5}$  POUNDS.

- CONVERT TO AN IMPROPER FRACTION:

$$\begin{aligned} \left[ \right. \\ 2 \frac{3}{5} = \left( 2 \times 5 + 3 \right) / 5 = (10 + 3) / 5 = 13 / 5 \\ \left. \right] \end{aligned}$$

- ANNA’S WEIGHT:  $13/5$  POUNDS

### UNDERSTANDING SANIKA’S PURCHASE

SANIKA BOUGHT  $\frac{1}{2}$  POUND LESS THAN ANNA.

- EXPRESSED MATHEMATICALLY:

$$\begin{aligned} \left[ \right. \\ \text{SANIKA’S WEIGHT} = \text{ANNA’S WEIGHT} - \frac{1}{2} \\ \left. \right] \end{aligned}$$

- SUBSTITUTING ANNA'S WEIGHT:

$$\left[ \begin{aligned} &= \frac{13}{5} - \frac{1}{2} \\ & \end{aligned} \right]$$

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## PERFORMING THE CALCULATIONS: SUBTRACTING FRACTIONS

TO SUBTRACT THESE FRACTIONS, THEY NEED A COMMON DENOMINATOR.

### FINDING A COMMON DENOMINATOR

- DENOMINATORS ARE 5 AND 2.
- LEAST COMMON DENOMINATOR (LCD): 10.

### CONVERTING FRACTIONS TO COMMON DENOMINATOR

$$\left[ \frac{13}{5} = \frac{13 \times 2}{5 \times 2} = \frac{26}{10} \right]$$

$$\left[ \frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10} \right]$$

### PERFORMING THE SUBTRACTION

$$\left[ \frac{26}{10} - \frac{5}{10} = \frac{21}{10} \right]$$

- SANIKA'S PURCHASE:

$$\left[ \boxed{\frac{21}{10} \text{ POUNDS}} \right]$$

- CONVERTING TO MIXED NUMBER:

$$\left[ \frac{21}{10} = 2 \frac{1}{10} \text{ POUNDS} \right]$$

RESULT: SANIKA BOUGHT 2 1/10 POUNDS OF GRAPES.

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# CALCULATING THE TOTAL QUANTITY OF GRAPES

NOW, SUMMING THE AMOUNTS BOUGHT BY ANNA AND SANIKA:

$$\text{TOTAL} = \text{ANNA'S WEIGHT} + \text{SANIKA'S WEIGHT}$$

USING IMPROPER FRACTIONS:

$$\frac{13}{5} + \frac{21}{10}$$

CONVERT  $(\frac{13}{5})$  TO DENOMINATOR 10:

$$\frac{13 \times 2}{5 \times 2} = \frac{26}{10}$$

ADD:

$$\frac{26}{10} + \frac{21}{10} = \frac{47}{10}$$

EXPRESSED AS A MIXED NUMBER:

$$\frac{47}{10} = 4 \frac{7}{10} \text{ POUNDS}$$

FINAL ANSWER: TOGETHER, ANNA AND SANIKA BOUGHT  $4 \frac{7}{10}$  POUNDS OF GRAPES.

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## BROADER MATHEMATICAL INSIGHTS AND EDUCATIONAL TAKEAWAYS

THIS PROBLEM, WHILE SEEMINGLY STRAIGHTFORWARD, OFFERS MULTIPLE LAYERS OF LEARNING:

### 1. MASTERY OF FRACTION CONVERSION

- CONVERTING MIXED NUMBERS TO IMPROPER FRACTIONS SIMPLIFIES CALCULATIONS.
- RECOGNIZING COMMON DENOMINATORS IS CRUCIAL FOR ADDITION AND SUBTRACTION.

### 2. THE SIGNIFICANCE OF LEAST COMMON DENOMINATORS (LCD)

- ENSURES FRACTIONS ARE COMPATIBLE FOR OPERATIONS.
- ENHANCES UNDERSTANDING OF FRACTION EQUIVALENCE.

### 3. APPLICATION OF BASIC ARITHMETIC IN CONTEXT

- ADDITION AND SUBTRACTION OF FRACTIONS MIRROR REAL-LIFE SCENARIOS.
- REINFORCES THE IMPORTANCE OF PRECISE CALCULATIONS IN SHOPPING AND BUDGETING.

### 4. CONVERSION BETWEEN MIXED NUMBERS AND IMPROPER FRACTIONS

- ESSENTIAL SKILL FOR SOLVING COMPLEX FRACTION PROBLEMS.
- FACILITATES EASIER COMPUTATION AND UNDERSTANDING.

### 5. PRACTICAL IMPLICATIONS

- HELPS IN ESTIMATING TOTAL QUANTITIES FOR PURCHASES.
- ASSISTS IN UNDERSTANDING DISCOUNTS, MEASUREMENTS, AND PORTIONS.

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## POTENTIAL VARIATIONS AND ADDITIONAL PROBLEMS

TO DEEPEN UNDERSTANDING, CONSIDER EXPLORING RELATED PROBLEMS:

- IF ANNA BOUGHT  $2\frac{3}{5}$  POUNDS AND SANIKA BOUGHT  $\frac{1}{2}$  POUND LESS, WHAT IF SANIKA BOUGHT  $\frac{1}{4}$  POUND MORE? HOW DOES THAT CHANGE THE TOTAL?
- WHAT IF ANNA BOUGHT  $3\frac{1}{4}$  POUNDS, AND SANIKA BOUGHT  $\frac{2}{3}$  POUND LESS? CALCULATE THE TOTAL.
- EXPRESSING FRACTIONS AS DECIMALS: CONVERT ALL QUANTITIES TO DECIMALS TO SEE HOW CALCULATIONS COMPARE.

THESE VARIATIONS HELP STUDENTS GRASP THE FLEXIBILITY AND APPLICABILITY OF FRACTIONAL AND DECIMAL ARITHMETIC.

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## REAL-LIFE APPLICATIONS BEYOND THE CLASSROOM

UNDERSTANDING HOW TO MANIPULATE FRACTIONS AND MIXED NUMBERS EXTENDS BEYOND ACADEMIC EXERCISES. HERE ARE SOME REAL-WORLD CONTEXTS:

- GROCERY SHOPPING: CALCULATING TOTAL WEIGHT OR COST WHEN PRODUCTS ARE SOLD IN FRACTIONS.
- COOKING RECIPES: ADJUSTING INGREDIENT QUANTITIES BASED ON DESIRED SERVINGS.
- CONSTRUCTION AND CARPENTRY: MEASURING LENGTHS AND AREAS INVOLVING FRACTIONAL MEASUREMENTS.
- FINANCIAL CALCULATIONS: UNDERSTANDING FRACTIONS OF PAYMENTS, DISCOUNTS, OR INVESTMENTS.

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## CONCLUSION: THE VALUE OF MATHEMATICAL PROBLEM-SOLVING

ANALYZING THE SCENARIO OF ANNA AND SANIKA'S GRAPE PURCHASES UNDERSCORES THE IMPORTANCE OF SOLID MATHEMATICAL FOUNDATIONS. NOT ONLY DO SUCH PROBLEMS HONE COMPUTATIONAL SKILLS, BUT THEY ALSO FOSTER LOGICAL REASONING, ATTENTION TO DETAIL, AND PRACTICAL DECISION-MAKING.

WHETHER YOU'RE A STUDENT LEARNING FRACTIONS, A TEACHER DESIGNING ENGAGING PROBLEMS, OR AN INDIVIDUAL APPLYING MATH TO EVERYDAY SITUATIONS, MASTERING THESE CONCEPTS EMPOWERS YOU TO HANDLE REAL-LIFE CHALLENGES CONFIDENTLY.

IN SUMMARY:

- ANNA BOUGHT  $2\frac{3}{5}$  POUNDS OF GRAPES.
- SANIKA, BUYING  $\frac{1}{2}$  POUND LESS, BOUGHT  $2\frac{1}{10}$  POUNDS.
- THE TOTAL AMOUNT OF GRAPES PURCHASED BY BOTH WAS  $4\frac{7}{10}$  POUNDS.

THIS COMPREHENSIVE EXPLORATION REMINDS US THAT MATH IS NOT JUST ABOUT NUMBERS BUT ABOUT UNDERSTANDING AND APPLYING CONCEPTS TO THE WORLD AROUND US.

## **Anna Bought 2 3 5 Lb Of Grapes And Sanika Bought 1 2 Lb Less Than Anna How Many Pounds Of Grapes Did**

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