

A GARDEN TABLE AND A BENCH COST \$589 COMBINED. THE GARDEN TABLE COSTS \$61 LESS THAN THE BENCH. WHAT IS

A GARDEN TABLE AND A BENCH COST \$589 COMBINED. THE GARDEN TABLE COSTS \$61 LESS THAN THE BENCH. WHAT IS A COMMON ALGEBRAIC PROBLEM THAT INVOLVES CALCULATING THE INDIVIDUAL COSTS OF TWO ITEMS BASED ON THEIR TOTAL COMBINED COST AND THEIR PRICE DIFFERENCE. SUCH PROBLEMS ARE NOT ONLY USEFUL FOR SHARPENING MATHEMATICAL SKILLS BUT ALSO FOR UNDERSTANDING PRACTICAL APPLICATIONS LIKE BUDGETING FOR GARDEN FURNITURE. IN THIS COMPREHENSIVE ARTICLE, WE WILL EXPLORE THE STEP-BY-STEP PROCESS OF SOLVING THIS PROBLEM, DISCUSS RELATED CONCEPTS, AND PROVIDE TIPS ON HOW TO APPROACH SIMILAR ALGEBRAIC PUZZLES. WHETHER YOU'RE A STUDENT, A HOMEOWNER PLANNING OUTDOOR FURNITURE, OR SIMPLY INTERESTED IN PROBLEM-SOLVING, THIS GUIDE WILL EQUIP YOU WITH THE KNOWLEDGE YOU NEED.

UNDERSTANDING THE PROBLEM

BEFORE DIVING INTO CALCULATIONS, IT'S ESSENTIAL TO CLEARLY UNDERSTAND WHAT THE PROBLEM IS ASKING. THE PROBLEM STATES:

- THE TOTAL COST OF A GARDEN TABLE AND A GARDEN BENCH COMBINED IS \$589.
- THE GARDEN TABLE COSTS \$61 LESS THAN THE GARDEN BENCH.
- WHAT ARE THE INDIVIDUAL COSTS OF THE GARDEN TABLE AND THE GARDEN BENCH?

THIS PROBLEM INVOLVES TWO UNKNOWN:

- COST OF THE GARDEN TABLE (LET'S DENOTE IT AS T)
- COST OF THE GARDEN BENCH (LET'S DENOTE IT AS B)

OUR GOAL IS TO FIND THE VALUES OF T AND B.

BREAKING DOWN THE INFORMATION

TO SOLVE THE PROBLEM SYSTEMATICALLY, WE NEED TO TRANSLATE THE WORDS INTO MATHEMATICAL EXPRESSIONS.

STEP 1: SET UP VARIABLES

- LET T = COST OF THE GARDEN TABLE
- LET B = COST OF THE GARDEN BENCH

STEP 2: WRITE EQUATIONS BASED ON THE PROBLEM

FROM THE PROBLEM, WE HAVE:

1. THE COMBINED COST:

$$T + B = 589$$

2. THE DIFFERENCE IN COST:

$$T = B - 61$$

NOTE: SINCE THE GARDEN TABLE COSTS LESS THAN THE BENCH BY \$61, THE TABLE'S COST T IS \$61 LESS THAN B, SO $T = B - 61$.

FORMULATING THE EQUATIONS

USING THE ABOVE, THE TWO EQUATIONS ARE:

- EQUATION 1: $T + B = 589$

- EQUATION 2: $T = B - 61$

WE CAN SUBSTITUTE EQUATION 2 INTO EQUATION 1 TO SOLVE FOR B.

SOLVING THE EQUATIONS

STEP 1: SUBSTITUTE T IN EQUATION 1

REPLACE T WITH $B - 61$:

$$(B - 61) + B = 589$$

STEP 2: SIMPLIFY AND SOLVE FOR B

COMBINE LIKE TERMS:

$$B - 61 + B = 589$$

$$2B - 61 = 589$$

ADD 61 TO BOTH SIDES:

$$2B = 589 + 61$$

$$2B = 650$$

DIVIDE BOTH SIDES BY 2:

$$B = 650 / 2 = 325$$

STEP 3: FIND T

RECALL $T = B - 61$:

$$T = 325 - 61 = 264$$

RESULTS AND VERIFICATION

THE INDIVIDUAL COSTS ARE:

- GARDEN BENCH: \$325
- GARDEN TABLE: \$264

TO VERIFY:

SUM: $264 + 325 = 589$ (WHICH MATCHES THE TOTAL COST)

DIFFERENCE: $325 - 264 = 61$ (WHICH MATCHES THE GIVEN DIFFERENCE)

SINCE BOTH CONDITIONS ARE SATISFIED, THESE ARE THE CORRECT SOLUTIONS.

PRACTICAL APPLICATIONS OF SUCH PROBLEMS

UNDERSTANDING HOW TO SOLVE PROBLEMS INVOLVING COMBINED COSTS AND DIFFERENCES HAS NUMEROUS REAL-WORLD APPLICATIONS:

- BUDGET PLANNING FOR FURNITURE OR APPLIANCES
- COMPARING PRICES FOR ITEMS WHEN DISCOUNTS OR PRICE DIFFERENCES ARE INVOLVED
- SOLVING SIMILAR ALGEBRAIC PROBLEMS IN FINANCE, SHOPPING, OR INVENTORY MANAGEMENT

TIPS FOR SOLVING SIMILAR ALGEBRAIC WORD PROBLEMS

WHEN FACED WITH PROBLEMS INVOLVING MULTIPLE UNKNOWNNS, CONSIDER THE FOLLOWING APPROACH:

1. **DEFINE VARIABLES CLEARLY:** ASSIGN VARIABLES TO UNKNOWN QUANTITIES.
2. **TRANSLATE WORDS INTO EQUATIONS:** CAREFULLY CONVERT DESCRIPTIVE INFORMATION INTO ALGEBRAIC EXPRESSIONS.
3. **USE SUBSTITUTION OR ELIMINATION:** CHOOSE THE MOST STRAIGHTFORWARD METHOD BASED ON THE NUMBER OF EQUATIONS AND VARIABLES.
4. **SOLVE STEP-BY-STEP:** SIMPLIFY EQUATIONS AND VERIFY SOLUTIONS.
5. **CHECK YOUR WORK:** PLUG SOLUTIONS BACK INTO ORIGINAL EQUATIONS TO CONFIRM CORRECTNESS.

RELATED MATHEMATICAL CONCEPTS

THIS PROBLEM RELATES TO SEVERAL KEY ALGEBRAIC PRINCIPLES:

LINEAR EQUATIONS

- EQUATIONS INVOLVING VARIABLES TO THE FIRST DEGREE
- SOLVABLE THROUGH SUBSTITUTION OR ELIMINATION

VARIABLES AND CONSTANTS

- VARIABLES REPRESENT UNKNOWN QUANTITIES
- CONSTANTS ARE FIXED VALUES LIKE \$589 AND \$61

WORD PROBLEMS AND TRANSLATION

- CONVERTING DESCRIPTIVE LANGUAGE INTO ALGEBRAIC EXPRESSIONS

CONCLUSION

SOLVING THE PROBLEM OF DETERMINING INDIVIDUAL COSTS FROM COMBINED TOTALS AND DIFFERENCES IS A FUNDAMENTAL SKILL IN ALGEBRA. BY DEFINING VARIABLES, TRANSLATING WORDS INTO EQUATIONS, AND SYSTEMATICALLY SOLVING, YOU CAN TACKLE SIMILAR PROBLEMS WITH CONFIDENCE. IN THIS SPECIFIC CASE, THE GARDEN TABLE COSTS \$264, AND THE GARDEN BENCH COSTS \$325. SUCH EXERCISES ENHANCE PROBLEM-SOLVING SKILLS AND ARE APPLICABLE IN EVERYDAY SCENARIOS LIKE SHOPPING, BUDGETING, AND PLANNING.

REMEMBER, THE KEY TO MASTERING ALGEBRAIC WORD PROBLEMS LIES IN CLARITY, ORGANIZATION, AND VERIFICATION. PRACTICE REGULARLY WITH DIFFERENT SCENARIOS TO BECOME PROFICIENT IN TRANSLATING REAL-WORLD SITUATIONS INTO MATHEMATICAL SOLUTIONS.

ADDITIONAL RESOURCES

- ALGEBRA TUTORIALS FOR BEGINNERS
- PRACTICE PROBLEMS ON WORD EQUATIONS
- BUDGET PLANNING TOOLS FOR OUTDOOR FURNITURE

SHOULD YOU WISH TO EXPLORE MORE COMPLEX PROBLEMS OR NEED ASSISTANCE WITH OTHER MATHEMATICAL CONCEPTS, CONSIDER CONSULTING EDUCATIONAL PLATFORMS OR WORKING WITH A MATH TUTOR TO DEEPEN YOUR UNDERSTANDING.

FREQUENTLY ASKED QUESTIONS

IF THE COMBINED COST OF A GARDEN TABLE AND BENCH IS \$589, AND THE TABLE COSTS \$61 LESS THAN THE BENCH, WHAT IS THE COST OF THE BENCH?

THE BENCH COSTS \$325.

HOW DO YOU FIND THE INDIVIDUAL PRICES OF THE GARDEN TABLE AND BENCH GIVEN THEIR TOTAL COST AND PRICE DIFFERENCE?

SET UP EQUATIONS BASED ON THE TOTAL AND DIFFERENCE, THEN SOLVE FOR EACH PRICE. FOR EXAMPLE, IF THE BENCH IS B AND THE TABLE IS T , THEN $T + B = 589$ AND $T = B - 61$. SUBSTITUTE TO FIND B AND T .

WHAT IS THE COST OF THE GARDEN TABLE IF THE BENCH COSTS \$325 AND THE TABLE COSTS \$61 LESS?

THE GARDEN TABLE COSTS \$264.

CAN YOU VERIFY THE INDIVIDUAL COSTS OF THE GARDEN TABLE AND BENCH WITH THE GIVEN TOTAL AND DIFFERENCE?

YES. IF THE BENCH IS \$325 AND THE TABLE IS \$264, THEN THEIR SUM IS \$589, AND THE TABLE COSTS \$61 LESS THAN THE BENCH, CONFIRMING THE CORRECTNESS.

WHAT STEPS ARE INVOLVED IN SOLVING FOR THE PRICES OF THE GARDEN TABLE AND BENCH IN THIS PROBLEM?

FIRST, ASSIGN VARIABLES TO THE PRICES, SET UP EQUATIONS BASED ON THE TOTAL COST AND DIFFERENCE, THEN SOLVE THE EQUATIONS SIMULTANEOUSLY TO FIND EACH ITEM'S PRICE.

ADDITIONAL RESOURCES

UNDERSTANDING THE COST RELATIONSHIP BETWEEN A GARDEN TABLE AND A BENCH: A DETAILED EXPLORATION

WHEN IT COMES TO OUTDOOR FURNITURE SHOPPING, ESPECIALLY FOR GARDEN SETUPS, UNDERSTANDING THE PRICING DYNAMICS BETWEEN DIFFERENT PIECES IS CRUCIAL. AMONG THE COMMON PIECES ARE GARDEN TABLES AND BENCHES, OFTEN PURCHASED AS A SET TO CREATE A COHESIVE OUTDOOR AESTHETIC. IN THIS DETAILED REVIEW, WE WILL EXPLORE A TYPICAL PROBLEM INVOLVING THE COMBINED COST OF A GARDEN TABLE AND A BENCH, WHERE THE TABLE COSTS LESS THAN THE BENCH BY A CERTAIN AMOUNT. SPECIFICALLY, WE WILL ANALYZE THE SCENARIO: A GARDEN TABLE AND A BENCH COST \$589 COMBINED. THE GARDEN TABLE COSTS \$61 LESS THAN THE BENCH. WHAT IS — AND HOW TO APPROACH SUCH PROBLEMS WITH CLARITY AND MATHEMATICAL PRECISION.

UNDERSTANDING THE BASIC PROBLEM STRUCTURE

BEFORE DIVING INTO CALCULATIONS, IT'S IMPORTANT TO UNDERSTAND THE CORE ELEMENTS OF THIS PROBLEM:

- THE TOTAL COST OF BOTH ITEMS COMBINED: \$589

- THE RELATIONSHIP BETWEEN THEIR COSTS: THE GARDEN TABLE COSTS \$61 LESS THAN THE BENCH

THIS SETUP IS A CLASSIC ALGEBRAIC WORD PROBLEM, OFTEN USED TO TEACH SYSTEMS OF EQUATIONS, SUBSTITUTION, AND PROBLEM-SOLVING STRATEGIES. LET'S BREAK DOWN THE PROBLEM INTO MANAGEABLE PARTS.

KEY VARIABLES

- LET T REPRESENT THE COST OF THE GARDEN TABLE.
- LET B REPRESENT THE COST OF THE BENCH.

GIVEN THE PROBLEM:

- $T + B = 589$ (TOTAL COST)
- $T = B - 61$ (THE GARDEN TABLE COSTS \$61 LESS THAN THE BENCH)

FORMULATING THE MATHEMATICAL EQUATIONS

TO SOLVE FOR THE INDIVIDUAL COSTS, WE NEED TO TRANSLATE THE PROBLEM INTO ALGEBRAIC EQUATIONS:

1. EQUATION 1: $T + B = 589$
2. EQUATION 2: $T = B - 61$

USING THESE EQUATIONS, WE CAN SUBSTITUTE EQUATION 2 INTO EQUATION 1 TO FIND THE VALUE OF B (THE BENCH'S COST), THEN DETERMINE T (THE TABLE'S COST).

STEP-BY-STEP SOLUTION PROCESS

STEP 1: SUBSTITUTE EQUATION 2 INTO EQUATION 1

REPLACING T WITH $B - 61$:

$$(B - 61) + B = 589$$

STEP 2: SIMPLIFY THE EQUATION

COMBINE LIKE TERMS:

$$B - 61 + B = 589$$

$$2B - 61 = 589$$

STEP 3: SOLVE FOR B

ADD 61 TO BOTH SIDES:

$$2B = 589 + 61$$

$$2B = 650$$

DIVIDE BOTH SIDES BY 2:

$$B = 650 / 2$$

$$B = 325$$

So, THE BENCH COSTS \$325.

STEP 4: FIND THE COST OF THE GARDEN TABLE

USING EQUATION 2:

$$T = B - 61 = 325 - 61 = 264$$

THE GARDEN TABLE COSTS \$264.

SUMMARY OF RESULTS

- BENCH COST: \$325
- GARDEN TABLE COST: \$264
- TOTAL COST: \$264 + \$325 = \$589

THIS CONFIRMS OUR CALCULATIONS ARE CONSISTENT WITH THE PROBLEM STATEMENT.

DEEPER INSIGHTS INTO THE PROBLEM

WHILE THE SOLUTION ABOVE IS STRAIGHTFORWARD ALGEBRA, IT'S BENEFICIAL TO EXPLORE VARIOUS ASPECTS AND IMPLICATIONS OF SUCH PROBLEMS.

THE SIGNIFICANCE OF RELATIVE PRICING

UNDERSTANDING THE DIFFERENCE IN PRICES (THE \$61 LESS FOR THE TABLE) OFFERS INSIGHT INTO:

- PRICING STRATEGIES: HOW SLIGHT DIFFERENCES CAN INFLUENCE TOTAL COSTS.
- BUDGET PLANNING: KNOWING INDIVIDUAL ITEM COSTS HELPS IN MAKING PURCHASING DECISIONS.
- MARKET COMPARISONS: RECOGNIZING HOW SIMILAR ITEMS ARE PRICED IN THE REAL WORLD.

THE ROLE OF VARIABLES AND EQUATIONS IN REAL LIFE

THESE ALGEBRAIC MODELS AREN'T JUST ACADEMIC EXERCISES—THEY MIRROR REAL-WORLD SCENARIOS WHERE:

- BUDGET CONSTRAINTS REQUIRE UNDERSTANDING THE RELATIVE COSTS.
- BUNDLED PURCHASES INVOLVE COMBINED PRICING.
- DISCOUNTS OR DIFFERENCES IN PRICING IMPACT OVERALL EXPENDITURE.

EXPANDING THE ANALYSIS: VARIATIONS AND APPLICATIONS

WHILE THE PROBLEM USES SPECIFIC NUMBERS, SIMILAR STRUCTURES CAN BE APPLIED TO VARIOUS SCENARIOS.

1. CHANGING THE TOTAL COST

SUPPOSE THE TOTAL COMBINED COST WAS DIFFERENT, SAY \$700, WHILE THE DIFFERENCE REMAINS \$61. THE SAME APPROACH APPLIES:

- SET THE EQUATIONS:
 - $T + B = 700$
 - $T = B - 61$
- SOLVE FOR B:
 - $B = (\text{TOTAL} - \text{DIFFERENCE}) / 2$
 - $B = (700 - 61) / 2 = 639 / 2 = 319.5$
- FIND T:
 - $T = B - 61 = 319.5 - 61 = 258.5$

THIS DEMONSTRATES THE FLEXIBILITY OF THE ALGEBRAIC APPROACH.

2. DIFFERENT PRICE DIFFERENCES

IF THE DIFFERENCE IN COST WAS LARGER OR SMALLER, THE SAME STEPS WOULD BE FOLLOWED, ADJUSTING THE VALUE OF THE DIFFERENCE ACCORDINGLY. THIS UNDERSCORES THE IMPORTANCE OF UNDERSTANDING THE UNDERLYING RELATIONSHIPS.

3. APPLICATION IN SHOPPING AND BUDGETING

KNOWING HOW TO SET UP AND SOLVE SUCH PROBLEMS IS INVALUABLE IN:

- COMPARING PRICES WHEN SHOPPING FOR OUTDOOR FURNITURE.
- BUDGETING FOR HOME RENOVATIONS OR GARDEN SETUPS.
- UNDERSTANDING PROMOTIONAL DISCOUNTS AND THEIR IMPACT ON TOTAL SPENDING.

ADDITIONAL CONSIDERATIONS AND REAL-WORLD FACTORS

WHILE THE MATHEMATICAL PROBLEM PROVIDES CLEAR NUMBERS, REAL-WORLD SCENARIOS INVOLVE ADDITIONAL FACTORS:

- MATERIAL COSTS: PRICES DEPEND ON MATERIAL QUALITY, DURABILITY, AND DESIGN.
- BRAND VALUE: WELL-KNOWN BRANDS MAY COMMAND HIGHER PRICES.
- SEASONAL DISCOUNTS: PRICES FLUCTUATE BASED ON SEASONAL SALES OR PROMOTIONS.
- SHIPPING AND HANDLING: ADDITIONAL COSTS CAN SIGNIFICANTLY AFFECT TOTAL EXPENDITURE.
- AVAILABILITY: STOCK LEVELS MAY INFLUENCE PRICING AND OPTIONS.

UNDERSTANDING THE BASIC MATHEMATICAL PRINCIPLES HELPS CONSUMERS MAKE INFORMED DECISIONS BY SEPARATING ACTUAL COSTS FROM PERCEIVED VALUE.

COMMON MISTAKES AND HOW TO AVOID THEM

WHEN TACKLING SIMILAR PROBLEMS, BE MINDFUL OF THESE PITFALLS:

- MIXING VARIABLES: ENSURE EACH VARIABLE IS CONSISTENTLY DEFINED.
- INCORRECT SUBSTITUTION: DOUBLE-CHECK SUBSTITUTIONS TO AVOID SIGN OR ARITHMETIC ERRORS.
- IGNORING UNITS: ALWAYS KEEP TRACK OF CURRENCY UNITS AND ENSURE CALCULATIONS ALIGN.
- MISREADING PROBLEM STATEMENTS: CLARIFY THE RELATIONSHIPS BEFORE BEGINNING CALCULATIONS.

BY PAYING ATTENTION TO THESE DETAILS, ONE CAN ACCURATELY SOLVE SIMILAR ALGEBRAIC PROBLEMS WITH CONFIDENCE.

CONCLUSION: THE POWER OF ALGEBRA IN EVERYDAY PROBLEMS

THE PROBLEM OF DETERMINING THE INDIVIDUAL COSTS OF A GARDEN TABLE AND A BENCH GIVEN THEIR TOTAL COMBINED PRICE AND THE DIFFERENCE IN THEIR COSTS IS A PRIME EXAMPLE OF HOW ALGEBRA CAN BE APPLIED TO REAL-WORLD SITUATIONS. NOT ONLY DOES THIS EXERCISE HELP SHARPEN MATHEMATICAL SKILLS, BUT IT ALSO ENHANCES PRACTICAL DECISION-MAKING.

UNDERSTANDING THE RELATIONSHIPS BETWEEN DIFFERENT ITEMS' COSTS—SUCH AS THE FACT THAT THE GARDEN TABLE COSTS \$61 LESS THAN THE BENCH—ALLOWS CONSUMERS, DESIGNERS, AND RETAILERS TO BETTER ESTIMATE, COMPARE, AND BUDGET FOR OUTDOOR FURNITURE OR ANY OTHER PAIRED PURCHASES.

BY MASTERING THESE FOUNDATIONAL ALGEBRAIC TECHNIQUES, YOU GAIN A POWERFUL TOOL TO ANALYZE, INTERPRET, AND SOLVE A WIDE ARRAY OF FINANCIAL AND LOGISTICAL PROBLEMS, MAKING YOUR SHOPPING EXPERIENCES MORE INFORMED AND STRATEGIC.

FINAL NOTES: WHETHER YOU'RE A HOMEOWNER PLANNING YOUR GARDEN SETUP, A STUDENT LEARNING ALGEBRA, OR A SHOPPER COMPARING PRICES, GRASPING HOW TO APPROACH SUCH PROBLEMS ENHANCES YOUR ANALYTICAL SKILLS. REMEMBER, THE KEY STEPS INVOLVE TRANSLATING WORDS INTO EQUATIONS, SOLVING SYSTEMATICALLY, AND VERIFYING YOUR RESULTS. WITH PRACTICE, THESE METHODS BECOME SECOND NATURE, EMPOWERING YOU TO TACKLE MORE COMPLEX SCENARIOS WITH EASE.

A Garden Table And A Bench Cost 589 Combined The Garden Table Costs 61 Less Than The Bench What Is

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