

Question 19 (1 Point) 1 1) Listen Solve The Proportion For : $X/11=10/47$ (Answer To One Decimal Place)

Question 19 (1 Point) 1 1) Listen Solve The Proportion For : $X/11=10/47$
(Answer To One Decimal Place)

Understanding and solving proportions is a fundamental skill in mathematics that has practical applications in everyday life, from calculating recipes to determining distances and rates. In this article, we will delve into Question 19, which involves solving the proportion $\frac{X}{11} = \frac{10}{47}$, with the goal of finding the value of X rounded to one decimal place. We will explore the concept of proportions, step-by-step solutions, and tips to ensure accuracy in solving such problems.

What Is a Proportion?

Definition of a Proportion

A proportion is an equation that states two ratios are equal. It is written in the form:

$$\frac{a}{b} = \frac{c}{d}$$

where a , b , c , and d are numbers, and $b \neq 0$, $d \neq 0$.

Real-Life Examples of Proportions

Proportions are used in various real-world scenarios, such as:

- Scaling a recipe: If 2 cups of flour are needed for 4 servings, how much flour is needed for 10 servings?
- Speed and time calculations: If a car travels 60 miles in 1 hour, how far will it travel in 4 hours?
- Financial ratios: Comparing profit margins or interest rates.

Step-by-Step Solution to the Proportion $\frac{X}{11} = \frac{10}{47}$

Understanding the Problem

Given the proportion:

- $\frac{X}{11} = \frac{10}{47}$

we need to find the value of X .

Method: Cross-Multiplication

The most straightforward method to solve for X in a proportion is cross-multiplication, which involves multiplying across the equal sign diagonally:

- $X \times 47 = 10 \times 11$

Calculations

Perform the multiplication:

- $47X = 110$

Now, solve for X :

- $X = \frac{110}{47}$

Calculating and Rounding to One Decimal Place

Using a calculator:

- $X \approx \frac{110}{47} \approx 2.3404255$

Rounded to one decimal place:

- $X \approx 2.3$

Additional Tips for Solving Proportions

Verify Your Work

After finding X , it's good practice to verify the solution by substituting back into the original proportion:

- Check if $\frac{2.3}{11}$ is approximately equal to $\frac{10}{47}$.

Calculations:

- $\frac{2.3}{11} \approx 0.2091$
- $\frac{10}{47} \approx 0.2128$

Since these are close, the approximation is acceptable, especially given rounding to one decimal place.

Practice with Similar Problems

To master solving proportions, practice with similar problems:

- Find Y if $\frac{Y}{5} = \frac{15}{25}$.
- Solve $\frac{7}{x} = \frac{21}{63}$.
- Determine Z if $\frac{3}{Z} = \frac{9}{27}$.

The Importance of Correct Rounding

Why Round to One Decimal Place?

In many contexts, especially in measurements and estimations, rounding to one decimal place provides a balance between accuracy and simplicity. It helps in:

- Communicating results clearly.
- Avoiding overcomplication when precision isn't critical.

How to Round Correctly

Follow these steps:

1. Identify the digit in the second decimal place.
2. Look at the digit immediately after it:
3. If it's 5 or more, increase the second decimal digit by 1.
4. If it's less than 5, leave the second decimal digit as is.

Conclusion

Solving proportions like $\left(\frac{X}{11} = \frac{10}{47} \right)$ is a fundamental math skill that combines understanding ratios, cross-multiplication, and careful calculation. By following straightforward steps—setting up the equation, cross-multiplying, performing the multiplication, and then dividing—you can efficiently find the unknown value. Remember to round your answer to the required decimal place, in this case, one decimal, to communicate your solution clearly. Practice with various problems to build confidence and accuracy in solving proportions, an essential skill in mathematics and real-world applications alike.

Frequently Asked Questions

What is the first step to solve the proportion $X/11 = 10/47$?

Cross-multiply to get $X \cdot 47 = 10 \cdot 11$.

How do you find the value of X in the proportion $X/11 = 10/47$?

After cross-multiplying, divide both sides by 47 to solve for X: $X = (10 \cdot 11) / 47$.

What is the exact value of X in the proportion $X/11 = 10/47$?

$X = (10 \cdot 11) / 47 = 110 / 47 \approx 2.3$ (rounded to one decimal place).

Why do we round the answer to one decimal place in this problem?

The question specifies to give the answer rounded to one decimal place for simplicity and clarity.

Can the proportion $X/11 = 10/47$ be solved without cross-multiplication?

Yes, but cross-multiplication is the most straightforward method for solving proportions.

What is the importance of understanding proportions in mathematics?

Proportions are fundamental for solving ratios, scaling, and many real-life problems involving relationships between quantities.

Is the solution $X \approx 2.3$ applicable to other similar proportion problems?

Yes, the method of cross-multiplication and rounding applies to solving similar proportion equations.

What tools can help solve this proportion problem more efficiently?

A calculator or algebraic tools can quickly compute the division after cross-multiplication to find X .

Additional Resources

Understanding and Solving the Proportion: A Deep Dive into $\left(\frac{X}{11} = \frac{10}{47} \right)$

Introduction

Mathematics, especially algebra, forms the backbone of logical reasoning and problem-solving skills. Among the fundamental concepts in algebra is the idea of proportions—equations that state two ratios are equal. The problem at hand, Question 19, presents a classic proportion:

$$\frac{X}{11} = \frac{10}{47}$$

\]

The goal is to solve for (X) , the unknown variable, and express the answer rounded to one decimal place. This task, seemingly straightforward, opens the door to exploring the principles behind proportions, methods for solving them, and the significance of precise calculations.

In this comprehensive review, we will explore the concept of proportions, the step-by-step process to solve this specific problem, and contextual insights into its applications.

Understanding the Concept of Proportion

What is a Proportion?

A proportion is a statement that two ratios or fractions are equivalent. This is mathematically expressed as:

$$\left[\frac{a}{b} = \frac{c}{d} \right]$$

where (a, b, c, d) are numbers, with (b) and (d) not equal to zero.

Key points about proportions:

- They establish a relationship of equality between two ratios.
- They are used to compare quantities and solve for unknowns.
- They form the basis of many real-world problems in science, engineering, finance, and everyday life.

Types of Proportions

- Direct Proportion: When two quantities increase or decrease together.
- Inverse Proportion: When one quantity increases as the other decreases.

In our case, we are dealing with a direct proportion, where the ratio of (X) to 11 is equal to 10 to 47.

Mathematical Foundations for Solving Proportions

The primary approach to solving proportions involves cross-multiplication, which relies on the fundamental property of equality:

$$\left[\frac{a}{b} = \frac{c}{d} \implies ad = bc \right]$$

\]

This property is valid as long as b and d are non-zero, which they are in this context.

Step-by-Step Solution of $\frac{X}{11} = \frac{10}{47}$

Step 1: Write Down the Equation

$$\frac{X}{11} = \frac{10}{47}$$

This is the given proportion, where X is unknown.

Step 2: Cross-Multiplied Equation

Applying cross-multiplication, we get:

$$X \times 47 = 10 \times 11$$

which simplifies to:

$$47X = 110$$

Step 3: Isolate X

Divide both sides of the equation by 47:

$$X = \frac{110}{47}$$

This gives an exact value for X , but it is a fraction that can be approximated to a decimal.

Step 4: Calculate the Decimal Approximation

Perform the division:

$$X \approx \frac{110}{47} \approx 2.3404255319$$

Using a calculator, this division yields approximately 2.3404255319.

Step 5: Round to One Decimal Place

The problem specifies to round the answer to one decimal place:

- The digit in the first decimal place is 3.
- The digit in the second decimal place is 4.

Since 4 is less than 5, the first decimal remains unchanged.

Final answer:

\[
X \approx \boxed{2.3}
\]

Additional Insights and Practical Applications

Why are proportions important?

Proportions are ubiquitous across various fields:

- Science: To determine concentrations, dilutions, or reaction rates.
- Engineering: For scaling models or designing components.
- Finance: To compare ratios such as profit margins or interest rates.
- Everyday Life: Cooking recipes, map reading, or calculating distances.

Common Mistakes to Avoid

- Not cross-multiplying correctly: Forgetting to multiply across the diagonals can lead to errors.
- Dividing by zero: Ensuring denominators are not zero is critical.
- Incorrect rounding: Always round to the specified number of decimal places, following standard rules.

Alternative Methods for Solving Proportions

While cross-multiplication is the most straightforward method, other approaches include:

- Scaling Method: Finding a common factor to scale ratios to similar values.
- Using Algebraic Ratios: Setting ratios equal and solving for unknowns algebraically, as demonstrated.

Conceptual Understanding of the Result

The value of (X) , approximately 2.3, indicates that in the given proportion, when (X) maintains the ratio with 11, it corresponds to 10 being in the ratio with 47. This proportionality helps us understand relationships between quantities—be it in real-life applications or theoretical problems.

Practice and Mastery

To deepen understanding, consider practicing similar problems:

1. Solve for (Y) in $(\frac{Y}{20} = \frac{15}{60})$.
2. Find (Z) in $(\frac{Z}{5} = \frac{12}{30})$.
3. Determine the unknown in $(\frac{7}{X} = \frac{14}{28})$.

Through consistent practice, students develop intuition for spotting proportional relationships quickly and accurately.

Summary and Final Thoughts

- The problem involves solving a proportion: $(\frac{X}{11} = \frac{10}{47})$.
- Applying the principle of cross-multiplication yields $(47X = 110)$.
- Solving for (X) gives $(X = \frac{110}{47} \approx 2.3404255319)$.
- Rounding to one decimal place results in 2.3.

This process underscores fundamental algebraic techniques essential for tackling ratio and proportion problems. Mastery of such concepts enhances problem-solving skills across disciplines and real-world scenarios.

Closing Remarks

Understanding proportions is a vital skill that transcends mathematics classes and finds relevance in science, business, engineering, and daily decision-making. The straightforward process of cross-multiplied equations simplifies the task of solving for unknown quantities and provides a critical foundation for more advanced algebraic concepts. Remember, accuracy in calculation and proper rounding are key to providing precise answers, particularly when answers are required to specific decimal places.

By mastering the solving of $(\frac{X}{11} = \frac{10}{47})$, students build confidence in handling ratios and lay a solid groundwork for tackling more complex problems involving proportions and ratios in the future.

End of Content

Question 19 1 Point 1 1 Listen Solve The Proportion For X 11 10 47 Answer To One Decimal Place

Question 19 1 Point 1 1 Listen Solve The Proportion For X 11 10 47 Answer To One Decimal Place

Related Articles

- [On His 45 Th Birthday M Deposited R1000 In A Fund Paying 3.5% And Continued Making Such Deposits Each](#)
- [Maben Company Was Started On January 1, Year 1, And Experienced The Following Events During Its First](#)
- [Read The Passage.Rescue MissionIve Got The Clips, Bungee Cord, Vests, And Basket, And The Rest Of The](#)

[Back to Home](#)