

Here Were $9/12$ Gallons Of Latex Paint In Storage. William Used $2/7$ Of The Paint For The Fence. How Much

Here Were $9/12$ Gallons Of Latex Paint In Storage. William Used $2/7$ Of The Paint For The Fence. How Much paint remained after his project? Understanding how to interpret fractions and perform basic calculations is essential for homeowners and DIY enthusiasts alike. In this article, we will explore the process of calculating the amount of paint used and remaining, breaking down the problem step-by-step to ensure clarity. Whether you're estimating paint quantities for your next project or simply looking to improve your math skills, this guide will help you understand how to work with fractions in real-world scenarios.

Understanding the Initial Quantity of Latex Paint

What does $9/12$ gallons mean?

Before diving into calculations, it's important to understand what $9/12$ gallons of paint represent. Fractions like $9/12$ are a way to express parts of a whole—in this case, gallons of paint.

- $9/12$ can be simplified to $3/4$ by dividing numerator and denominator by their greatest common divisor, 3.
- Therefore, $9/12$ gallons is equivalent to $3/4$ gallons, or 0.75 gallons.

Why is understanding the initial amount important?

Knowing the initial quantity helps us determine how much paint was used and how much remains after William's project. It forms the basis for all subsequent calculations.

Calculating How Much Paint William Used

What does $2/7$ of the paint mean?

William used $2/7$ of the total paint for fence painting. To find out how much that is in gallons, we need to multiply the total amount by this fraction.

Step-by-step calculation

- Total paint in storage: $\frac{3}{4}$ gallons (or 0.75 gallons).
- Fraction used: $\frac{2}{7}$.
- Calculation: (Total paint) $\times$ (Fraction used) = $(\frac{3}{4}) \times (\frac{2}{7})$.
 - Multiply numerators: $3 \times 2 = 6$.
 - Multiply denominators: $4 \times 7 = 28$.
 - Result: $\frac{6}{28}$ gallons.
 - Simplify the fraction: $\frac{6}{28} = \frac{3}{14}$ gallons (dividing numerator and denominator by 2).
- Therefore, William used $\frac{3}{14}$ gallons of paint for the fence.

Determining the Remaining Paint

How much paint is left after William's usage?

To find the remaining paint, subtract the amount used from the initial total:

Remaining paint = Initial paint – Used paint.

- Initial paint: $\frac{3}{4}$ gallons.
- Used paint: $\frac{3}{14}$ gallons.

Performing the subtraction

Since the denominators are different (4 and 14), we need to find a common denominator:

- Least common denominator (LCD) of 4 and 14 is 28.

Convert both fractions to have denominator 28:

- $\frac{3}{4} = \frac{(3 \times 7)}{(4 \times 7)} = \frac{21}{28}$.
- $\frac{3}{14} = \frac{(3 \times 2)}{(14 \times 2)} = \frac{6}{28}$.

Now, subtract:

Remaining paint = $\frac{21}{28} - \frac{6}{28} = \frac{(21 - 6)}{28} = \frac{15}{28}$ gallons.

- William has $\frac{15}{28}$ gallons of paint remaining after the fence project.

Summary of Calculations

- Initial paint in storage: $\frac{9}{12}$ gallons, which simplifies to $\frac{3}{4}$ gallons.
- Paint used for fence: $\frac{2}{7}$ of total, which equals $\frac{3}{14}$ gallons.
- Paint remaining: $\frac{15}{28}$ gallons.

Practical Implications for Homeowners and DIY Enthusiasts

Estimating paint needs for future projects

Understanding how to work with fractions allows homeowners to accurately estimate how much paint they'll need for various projects. For example, if a homeowner has $\frac{3}{4}$ gallons of paint and plans to paint a fence requiring approximately $\frac{1}{2}$ gallon, they can confidently determine whether they have enough paint or need to purchase more.

Converting fractions to decimals for easier understanding

While fractions are precise, converting them to decimal form can sometimes make visualization easier:

- $\frac{15}{28} \approx 0.5357$ gallons (approximately half a gallon).
- $\frac{3}{14} \approx 0.2143$ gallons.

This helps in making quick visual assessments.

Additional Tips for Working with Fractions in Paint Calculations

- **Simplify fractions:** Always reduce fractions to their simplest form for easier calculations.
- **Find common denominators:** Essential when subtracting or adding fractions with different denominators.
- **Use calculator tools or fraction calculators:** To avoid errors, especially with complex fractions.

- **Keep units consistent:** Make sure all measurements are in the same units before performing calculations.

Conclusion

Understanding how to interpret and work with fractions is invaluable when managing materials like latex paint. In the case of William's project, starting with $\frac{9}{12}$ gallons (or $\frac{3}{4}$ gallons), using $\frac{2}{7}$ of that amount for the fence, and calculating the remaining paint as $\frac{15}{28}$ gallons demonstrates practical application of fraction operations. Whether you're a homeowner planning your next painting project or just looking to improve your math skills, mastering these calculations will help you plan more effectively, avoid waste, and ensure you have enough materials to complete your work efficiently.

Remember, the key steps involve converting fractions to common denominators, simplifying where possible, and performing accurate multiplication and subtraction. With these skills, you'll confidently manage your supplies and budget for future projects.

Frequently Asked Questions

How much latex paint was originally in storage before William used any?

There were $\frac{9}{12}$ gallons of latex paint in storage initially, which simplifies to $\frac{3}{4}$ gallons.

How much paint did William use for the fence?

William used $\frac{2}{7}$ of the original amount of paint for the fence.

How can I calculate the amount of paint William used in gallons?

Multiply the total paint ($\frac{3}{4}$ gallons) by $\frac{2}{7}$: $(\frac{3}{4}) (\frac{2}{7}) = \frac{6}{28} = \frac{3}{14}$ gallons.

What is the remaining amount of paint after William used some for the fence?

Subtract the amount William used ($\frac{3}{14}$ gallons) from the original ($\frac{3}{4}$ gallons): $\frac{3}{4} - \frac{3}{14} = (\frac{21}{28}) - (\frac{6}{28}) = \frac{15}{28}$ gallons.

How do I simplify the remaining paint fraction after William used some?

The remaining paint is $15/28$ gallons, which is already in simplest form.

What is the total amount of paint left after William's use?

There are $15/28$ gallons of latex paint remaining in storage after William used some for the fence.

Why is it important to convert fractions to common denominators in such calculations?

Converting fractions to common denominators simplifies addition and subtraction, making it easier to accurately calculate the remaining or used amounts of paint.

Additional Resources

Here Were $9/12$ Gallons Of Latex Paint In Storage. William Used $2/7$ Of The Paint For The Fence. How Much

In the realm of home improvement and DIY projects, understanding quantities and conversions is vital for success. When it comes to managing supplies like latex paint, precise calculations ensure efficient use and prevent waste. A common scenario involves a homeowner or painter—William, in this case—who begins with a specific amount of paint and then uses a portion for a project. This article delves into the details of such a situation, exploring the initial quantity, the amount used, and the remaining paint. Through thorough explanation, detailed calculations, and contextual analysis, we aim to provide clarity and insight into how to approach similar problems with confidence.

Understanding the Initial Quantity of Paint

The problem begins with a statement: "Here were $9/12$ gallons of latex paint in storage." This fractional expression can appear confusing at first glance, but breaking it down reveals the actual starting quantity.

Interpreting the Fraction 9/12

- Simplification:

The fraction 9/12 can be simplified to its lowest terms by dividing numerator and denominator by their greatest common divisor (GCD).

- GCD of 9 and 12 is 3.
- Simplified fraction: $9 \div 3 / 12 \div 3 = 3/4$.

- Implication:

Therefore, William initially had 3/4 of a gallon of latex paint stored.

Converting the Fraction to a Decimal

While fractions are precise, decimals sometimes ease calculations:

- $3/4 = 0.75$ gallons.

Summary:

William started with 0.75 gallons of latex paint.

Calculating the Amount of Paint Used

The next piece of information states that William used 2/7 of the paint for the fence.

Expressing the Used Quantity

- Fractional form:
- Used paint = 2/7 of the initial amount.
- Mathematical expression:
- Used paint = $(2/7) \times (3/4)$ gallons.

Performing the Calculation

To find the exact amount William used:

- Multiply the fractions:
 $(2/7) \times (3/4) = (2 \times 3) / (7 \times 4) = 6 / 28$.
- Simplify the result:

$$6/28 \div 2/2 = 3/14.$$

Result:

William used $3/14$ gallons of paint for the fence.

Decimal equivalent:

- $3/14 \approx 0.2143$ gallons (rounded to four decimal places).

Determining the Remaining Paint

Having established the amount used, the next logical step is to determine how much paint remains after William's project.

Subtracting the Used Amount from the Initial Quantity

- Initial amount: $3/4$ gallons (0.75 gallons).

- Paint used: $3/14$ gallons (~ 0.2143 gallons).

- Calculation:

Remaining paint = Initial amount - Used amount
 $= (3/4) - (3/14).$

Finding a Common Denominator

To subtract fractions, convert them to equivalent fractions with the same denominator:

- Denominator of 4 and 14:

- Least common denominator (LCD) = $4 \times 14 = 56$.

- Convert each fraction:

- $3/4 = (3 \times 14) / (4 \times 14) = 42/56$.

- $3/14 = (3 \times 4) / (14 \times 4) = 12/56$.

- Subtract:

Remaining paint = $42/56 - 12/56 = (42 - 12)/56 = 30/56$.

- Simplify:

Divide numerator and denominator by 2:

$30/56 \div 2/2 = 15/28$.

Final amount remaining:

- $15/28$ gallons.

Decimal equivalent:

- $15/28 \approx 0.5357$ gallons.

Summary:

William has approximately 0.5357 gallons of latex paint left after completing his fence project.

Contextual Analysis and Practical Implications

Understanding these calculations has both practical and theoretical significance. It enables homeowners, painters, and DIY enthusiasts to plan projects more effectively, estimate materials needed, and minimize waste.

The Importance of Accurate Quantification

- Cost Management:

Precise measurements prevent over-purchasing or underestimating supplies, saving money.

- Project Planning:

Knowing exactly how much paint is used and remaining assists in scheduling subsequent projects or touch-ups.

- Resource Conservation:

Efficient use of materials aligns with environmentally conscious practices.

Application in Real-World Scenarios

Suppose William plans to paint multiple sections of his house or other structures. Knowing he started with 0.75 gallons and used approximately 0.214 gallons allows him to:

- Calculate how many similar projects he can undertake with remaining paint.
- Determine if additional paint needs to be purchased.
- Adjust his painting strategy to optimize coverage.

Limitations and Considerations

While mathematical calculations provide an accurate estimate, real-world

factors can influence actual paint usage:

- Surface Texture:

Rough or porous surfaces may require more paint.

- Application Method:

Brush, roller, or spray can affect coverage efficiency.

- Paint Quality:

Thicker or higher-quality paint might cover more area per gallon.

- Environmental Conditions:

Temperature and humidity can influence drying time and application.

Broader Educational Perspective

The problem also offers a valuable educational opportunity to understand fractions, conversions, and their applications.

Key Mathematical Concepts Illustrated

- Fraction Simplification:

Recognizing when fractions can be reduced simplifies calculations.

- Fraction Multiplication:

Combining fractions to find parts of a whole.

- Common Denominator Finding:

Essential for adding or subtracting fractions accurately.

- Decimal Conversion:

Facilitates understanding and comparison of fractional quantities.

Potential for Extended Learning

- Applying similar calculations to different initial quantities or usage rates.

- Exploring percentages as an alternative way to interpret fractions.

- Using visual aids, like pie charts, to better understand fractional parts.

Conclusion: Practical Takeaways and Final Thoughts

This scenario involving William's latex paint highlights the importance of precise measurement and calculation in everyday tasks. Starting with $\frac{3}{4}$ gallons of paint, using $\frac{2}{7}$ of it for a project, and determining the remaining quantity illustrates fundamental principles of fractional arithmetic and their application in real-world contexts.

Key outcomes:

- William initially had 0.75 gallons of latex paint.
- He used approximately 0.214 gallons (or $\frac{3}{14}$ gallons) for his fence.
- He has about 0.536 gallons (or $\frac{15}{28}$ gallons) remaining, enough for further projects or touch-ups.

Mastering such calculations empowers individuals to manage their resources effectively, plan projects accurately, and develop a deeper appreciation for the practical utility of mathematics. Whether for home improvement, professional painting, or educational purposes, understanding how to interpret and manipulate fractional quantities is an invaluable skill.

Additional Resources for Readers:

- Online Fraction Calculators:

Tools that can perform complex fraction operations quickly.

- Paint Coverage Guides:

Charts indicating how much area a gallon of paint can cover, aiding in project planning.

- Mathematics Tutorials:

Resources for mastering fraction operations, conversions, and problem-solving strategies.

By applying these principles and tools, homeowners and professionals alike can ensure their projects are completed efficiently, economically, and with confidence in their calculations.

[Here Were 9 12 Gallons Of Latex Paint In Storage William Used 2 7 Of The Paint For The Fence How Much](#)

Here Were 9 12 Gallons Of Latex Paint In Storage William Used 2 7 Of The Paint For The Fence How Much

Related Articles

- [Convert Into Indirect SpeechGERRARD : You're Not Particularly Decorative.INTRUDER : No! Well, That Goes](#)
- [Explain How, If At All, Each Of The Following Transactions Generates Two Entries \(a Credit And A Debit\)](#)
- [Consider A I-by-n Chessboard. Suppose We Color Each Square Of The Chessboard With One Of The Two Colors](#)

[Back to Home](#)