



Additional Practice 12-9 Precision

Another Look!

Meg and Tina measured the length of their classroom. They wondered how the measurements compare.

Meg

Our classroom is
 $9\frac{1}{3}$ yards long

Tina

Length of
classroom = 28 ft

Tell how you can use precision to compare the measurements.

- I can use numbers, units, and symbols correctly.
- I can calculate accurately.
- I can give a clear answer.

Use precision to compare the measurements.

Convert $9\frac{1}{3}$ yards to feet.

$$9\frac{1}{3} \text{ yd} = \underline{\hspace{1cm}} \text{ ft}$$

$$9\frac{1}{3} \times 3 = \frac{28}{3} \times \frac{3}{1} = \frac{84}{3} = 28$$

So, $9\frac{1}{3} \text{ yd} = 28 \text{ ft}$.

Since $9\frac{1}{3} \text{ yd} = 28 \text{ ft}$, the measurements are equal.

Be Precise

William bought a 0.5-liter bottle of liquid plant food. He uses 40 milliliters a week.

Be precise when you work with measurements, and communicate your reasoning clearly.



1. What measurements are given? Are the same units used for each measurement? Explain.

0.5 L and 40 mL; Different units are used. The first measurement is given in liters. The second is given in milliliters.

2. Explain how you can convert one of the measurements so that both use the same unit.

**Sample answer: Convert 0.5 L to mL:
 $0.5 \times 1,000 \text{ mL} = 500 \text{ mL}$.**

3. How much plant food does William need for 12 weeks? Explain.

480 mL; $12 \times 40 = 480$

4. Is one bottle enough for 12 weeks? Give a clear answer.

Yes; $0.5 \text{ L} > 480 \text{ mL}$ because $0.5 \text{ L} = 500 \text{ mL}$.

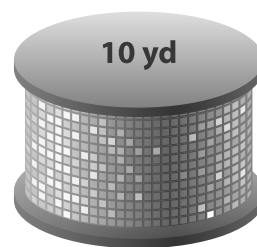




Performance Task

Buying Ribbon

Mimi needs eleven 18-inch pieces of rhinestone ribbon. She purchased 5 yards of the ribbon shown at the right.



**\$6 per yard
or
\$55 for the whole spool**

5. **Be Precise** What is the total amount of ribbon Mimi needs? Explain.

**Mimi needs 198 inches of ribbon;
 $11 \times 18 = 198$**

6. **Reasoning** Do you need to convert measurements to determine if Mimi purchased the right amount of ribbon? Explain.

Yes; I know she needs 198 inches of ribbon, but the amount she bought is given in yards.

7. **Model with Math** Show how to convert the measurements you described in Exercise 6.

Sample conversion:

$$5 \text{ yd} = \square \text{ in.}$$

$$5 \times 36 = 180 \text{ in.}$$

8. **Be Precise** Did Mimi purchase the correct amount of ribbon? Explain.

No; she purchased $5 \text{ yd} = 180 \text{ in.}$, but she needs 198 in.

9. **Make Sense and Persevere** If Mimi purchases the additional ribbon she needs, what will be the total cost of all the ribbon? Show two different ways to find the answer.

The total cost would be \$33. One way: Mimi needs $198 \text{ in.} \div 36 = 5.5 \text{ yd}$. $\$6 \times 5.5 = \33 . Another way: She needs an additional $198 - 180 = 18 \text{ inches} = 0.5 \text{ yd}$. The cost of 5 yd is $\$6 \times 5 = \30 . The additional 0.5 yd will cost $\$6 \times 0.5 = \3 . So the total cost will be $\$30 + \$3 = \$33$.

To be precise, you need to check that you are using units of measure correctly and that your conversions are accurate.

