Lesson 11-8

Tuesday, February 25, 2020 1:19 PM

8

Name

Solve & Share

Beth wants to make a picture frame like the one pictured below. She recorded the outside dimensions as 5 cm by 7 cm. Measure the outside dimensions of the frame in millimeters. Compare your measurements to Beth's. Do you think her measurements are precise enough? Explain.

52 mm

73 mm

Math Practices and Problem Solving

Lesson 11-8

Precision and – Exact accurate

I can ...

be precise when solving measurement problems.

Mathematical Practices MP.6. Also MP.1, MP.2, MP.4
Content Standards 5.MD.A.1, 5.NBT.B.5

Thinking Habits

*Think about these questions to help you **attend to precision**.*

- Am I using numbers, units, and symbols appropriately?
- Am I using the correct definitions?
- Am I calculating accurately?
- Is my answer clear?

If Beth is being precise she should have decimal measurements!

Look Back! MP.6 Be Precise What is the difference between the perimeter based on the measurements Beth made and the perimeter based on the measurements you made? Explain how you found the answer.

Beth's Perimeter

6cm x 10mm = 60mm
7cm x 10mm = 70mm
P = (2x50mm) + (2x70mm) = 240mm

Class Perimeter

P = (2x52mm) + (2x73mm)
104 + 146 = 250 mm

Difference

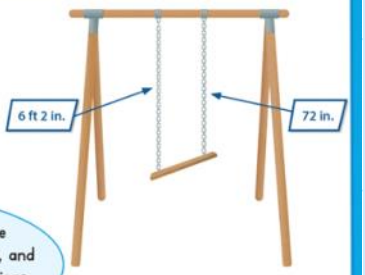
250mm - 240mm = 10mm or 1cm diff.

Essential Question: How Can You Be Precise When Solving Math Problems?

A

Chad and Rhoda are hanging a swing. Chad cut a piece of chain 6 feet 2 inches long. Rhoda cut a piece of chain 72 inches long. When they hung the swing, it was crooked.

Use precise language to explain why.



Be Precise means that you use appropriate math words, symbols, and units as well as accurate calculations when you solve problems.

B **How can I be precise in solving this problem?**

I can

- calculate accurately.
- give a clear answer.
- use the correct units.

C

Here's my thinking...

Convert 6 ft 2 inches to inches to see if Chad and Rhoda cut equal lengths of chain.

6 ft 2 in. = ☐ in.

$6 \times 12 = 72$, so 6 ft = 72 in.

6 ft 2 in. $= 72 + 2 = 74$ in.

Chad's chain is 74 inches long, but Rhoda's chain is only 72 inches long. Since Chad and Rhoda used unequal lengths of chain, the swing is crooked.

Convince Me! MP.6 Be Precise What recommendations would you make to Chad and Rhoda so that the swing hangs level?

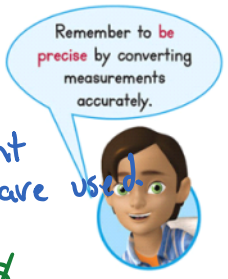
Cut 2 inches of chain off of the left side so that both sides are 72 inches long.

Name _____

Guided Practice*

MP.6 Precision

Mary needs a board 4 feet 8 inches long. She cut a board 56 inches long.



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

   4ft 8in & 56in. Different units, inches and feet, are used.

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

   4 feet 8 in = 4 x 12 = 48
   48 + 8 = 56 in.

3. Is the board Mary cut the right length? Give a clear and appropriate answer.

   Yes. 4ft 8in is equal to 56 in.

Independent Practice

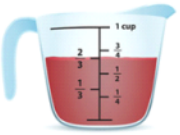
MP.6 Be Precise

Sean is making meat loaf. He used the amount of catsup shown in the measuring cup.

Meat Loaf
2 lb ground beef
1 egg
6 fl oz catsup
$\frac{1}{2}$ c bread crumbs
salt and pepper to taste

4. Are the units that Sean used to measure the catsup the same as those given in the recipe? Explain.

   No. The recipe calls for 6 fl. Oz of catsup and the measuring cup shows 2/3c of catsup.



5. How can you convert one of the measurements so that both use the same unit?

   6 fl oz. ÷ 8 fl. oz = $\frac{6}{8} \div \frac{2}{2}$ or $\frac{3}{4}$ c.
   Or $\frac{2}{3} \times 8 = \frac{2}{3} \times \frac{8}{1} = \frac{16}{3} = 5\frac{1}{3}$ fl. oz

6. Did Sean use the right amount of catsup? Give a clear and appropriate answer.

   No. Sean did not use enough catsup. 6 fl. oz. equals 3/4 c. 3/4c is greater than 2/3 c. That is why Sean is not correct.

*For another example, see Set H on page 690.

No. Sean did not use enough catsup. 2/3 c. equals 5 1/3 fl. oz. which is less than the 6 fl. oz. that the recipe calls for.

Complete
4-6

Math Practices and Problem Solving

Common Core Performance Assessment

Shipping a Package

A customer is using regular delivery to ship a package. Northside Shipping Company discovered that its old scale is not very accurate. It registers a weight that is 2 ounces too heavy. A new, accurate scale shows that the actual weight of the customer's package is 2 pounds 11 ounces.

Northside Shipping Company

Regular Delivery
$0.75 first ounce
$0.60 each additional ounce

Rush Delivery
$1.45 first ounce
$0.75 each additional ounce

7. **MP.1 Make Sense and Persevere** Which information do you need to determine the total shipping cost using either scale?

To be precise, you need to check that the words, numbers, symbols, and units you use are correct and that your calculations are accurate.

8. **MP.6 Be Precise** Why do you need to convert measurements to determine total shipping costs?

9. **MP.4 Model with Math** Show how to convert the measurements you described in Exercise 8.

10. **MP.6 Be Precise** What would the total cost be if the package is weighed on the new scale? What would the total cost be if the package is weighed on the old scale? Show your work.