G3-M2-Lesson 20

Esther measures rope. She measures a total of 548 centimeters of rope and cuts it into two pieces. The first piece is 152 centimeters long. How long is the second piece of rope?

a. Estimate the length of the second piece of rope by rounding.

$548 \text{ cm} \approx 500 \text{ cm}$

$152 \text{ cm} \approx 200 \text{ cm}$

I can round each number to the nearest hundred for my first estimate. I notice that both numbers are far from the hundred.

$500 \text{ cm} - 200 \text{ cm} = 300 \text{ cm}$

The second piece of rope is about 300 cm *long.*

b. Estimate the length of the second piece of ribbon by rounding in a different way.

$548 \text{ cm} \approx 550 \text{ cm}$

$152 \text{ cm} \approx 150 \text{ cm}$

I can round each number to the nearest ten for my second estimate. Wow, both numbers are close to the fifty! This makes it easy to calculate.

$550 \text{ cm} - 150 \text{ cm} = 400 \text{ cm}$

The second piece of rope is about 400 cm *long.*

c. Precisely how long is the second piece of rope?

$$\begin{array}{r} {}^{4}\cancel{5}{}^{14}\cancel{4}8 \text{ cm} \\ -\ 152 \text{ cm} \\ \hline 396 \text{ cm} \end{array}$$

Before I am ready to subtract, I can unbundle 1 hundred for 10 tens.

The second piece of rope is precisely 396 cm *long.*

d. Is your answer reasonable? Which estimate was closer to the exact answer?

Rounding to the nearest ten was closer to the exact answer, and it was easy mental math. The estimate was only 4 cm away from the actual answer. So that's how I know my answer is reasonable.

Comparing my actual answer with my estimate helps me check my calculation because if the answers are very different, I've probably made a mistake in my calculation.