

Name:	Mae [REDACTED]
Instructor:	Samuel Chukwuemeka
Objective:	To convert a measurement from a unit to another unit.
Measurement:	Mass
1st Given Unit:	Customary unit (Ounce)
To Convert to:	Metric unit (Gram)
2nd Given Unit:	Metric unit (Gram)
To Convert to:	Customary unit (Ounce)
Container used:	Chu Hou Paste Jar (Black bean paste)



Calculations:

First Conversion: 8.5 oz to g

From Given Tables:

$$1 \text{ lb} = 16 \text{ oz}$$

$$1 \text{ lb} = 453.59237 \text{ g}$$

$$1 \text{ lb} = 1 \text{ lb}$$

$$16 \text{ oz} = 453.59237 \text{ g}$$

Let p = mass of 8.5 oz in g

Proportional Reasoning Method:

oz	g
16	453.59237
8.5	p

$$\frac{p}{8.5} = \frac{453.59237}{16}$$

Multiply both sides by 8.5:

$$8.5 \times \frac{p}{8.5} = 8.5 \times \frac{453.59237}{16}$$

$$p = \frac{8.5 \times 453.59237}{16}$$

$$p = \frac{3,855.535145}{16}$$

$$p = 240.9709465625$$

Exact value: 240.9709465625 g

Value on the container: 240 g

Rounded to the nearest whole number and used the rounding rule for multiplication, which states: “Round your answer to the same number of significant digits as the measurement with the fewest significant digits.”

The number with the fewest significant digits was 8.5, which had two significant digits. This explains why my answer would not be 241 g (which is 240.9709465625 g rounded to the nearest whole number), because that contains 3 significant digits. The number 240 has two significant digits, just like the number 8.5.

Therefore, using both rules, I end up with 240 g, which matches the number in parenthesis on the jar.

Second Conversion: 240 g to oz

From Given Tables:

$$1 \text{ lb} = 16 \text{ oz}$$

$$1 \text{ lb} = 453.59237 \text{ g}$$

$$1 \text{ lb} = \text{lb}$$

$$\text{Therefore: } 16 \text{ oz} = 453.59237 \text{ g}$$

Let $p = \text{mass of } 240 \text{ g in oz}$

Proportional Reasoning Method:

oz	g
16	453.59237
p	240

$$\frac{p}{240} = \frac{16}{453.59237}$$

Multiply both sides by 240:

$$240 \times \frac{p}{240} = 240 \times \frac{16}{453.59237}$$

$$p = \frac{240 \times 16}{453.59237}$$

$$p = \frac{3,840}{453.59237}$$

$$p = 8.4657508679$$

Exact value: 8.4657508679 oz

Value on the container: 8.5 oz

Rounded down to the nearest tenth to match the number on the jar.

<p>References</p> <p>(APA format):</p>	<p>Bennett, J., & Briggs, W. (2022). <i>Using & Understanding Mathematics: A Quantitative Reasoning Approach</i> (8th ed.) Pearson.</p> <p>Samuel Chukwuemeka. <i>MTH 154: Quantitative Reasoning (Online)</i>. Projects: Measurements and Units.</p> <p>https://quantitativereasoning.appspot.com/</p>
--	--