

**PSSA Open Ended Prep – Proportions #2**

Please read the given situation carefully. Then, answer each question that follows. If you are asked to EXPLAIN something, please do so using COMPLETE SENTENCES!

Situation #1:

Gordon bought a 10-ounce box of Sweet Crunch cereal for $3.80 and a 12-ounce box of Sour Soggie cereal for $4.20.

**Part A)** Use unit rates to find out which cereal has the better value. **Show all work.**  
Sweet Crunch \( \frac{\$3.80}{10 \text{ oz}} = \frac{38 \, \text{¢}}{\text{oz}} \)

Sour Soggie \( \frac{\$4.20}{12 \text{ oz}} = \frac{35 \, \text{¢}}{\text{oz}} \)

Since 38 cents per ounce is cheaper than 35 cents per ounce, Sweet Crunch cereal has the better value.

**Part B)** Use a proportion to determine how much a jumbo box (40-ounces) of Sour Soggie cereal might cost. **Show all work.** **EXPLAIN** what you did and why?  
\[
\frac{12 \text{ oz}}{4.20} = \frac{40 \text{ oz}}{x}
\]

\[
12x = 168 \\
\frac{12}{12} \frac{x}{x} = \frac{14}{14}
\]

\( x = 14 \)  
I created a proportion, and then solved by cross multiplying. I would estimate the jumbo box costing \( \$14 \).

**Part C)** If the Sweet Crunch cereal is also sold in a 14-ounce box for $5.18, and a 24-ounce box for $9.12, which size box of Sweet Crunch should Gordon buy? **Show all work.**  
\[
\frac{\$3.80}{10} = \frac{38 \, \text{¢}}{\text{oz}} \quad \frac{\$5.18}{14} = \frac{37 \, \text{¢}}{\text{oz}} \quad \frac{\$9.12}{24} = \frac{38 \, \text{¢}}{\text{oz}}
\]

The 14-ounce box of Sweet Crunch should be purchased as it is the best value.
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Situation #2:

On a blueprint of Jeremy’s house, the dimensions of the family room are 4 inches by 6 inches. The scale on the blueprint is ¼ in = 1 foot.

Part A) What are the actual dimensions of Jeremy’s family room? **Show all work.** EXPLAIN what you did and why.

\[
\frac{\frac{1}{4} \text{ in}}{1 \text{ ft}} = \frac{4 \text{ in}}{x} \quad \frac{\frac{1}{4} \text{ in}}{1 \text{ ft}} = \frac{6 \text{ in}}{y}
\]

\[
4 \cdot \frac{x}{4} = 4 \cdot 4 \quad 4 \cdot \frac{y}{4} = 6 \cdot 4
\]

\[
x = 16 \quad y = 24
\]

**16 ft by 24 ft**

Part B) Jeremy wants to change the dimensions of his family room to 22 feet by 26 feet. What would be the dimensions on the blueprint? **Show all work.**

\[
\frac{\frac{1}{4} \text{ in}}{1 \text{ ft}} = \frac{x}{22 \text{ ft}} \quad \frac{\frac{1}{4} \text{ in}}{1 \text{ ft}} = \frac{y}{26 \text{ ft}}
\]

\[
x = \frac{22}{4} = 5 \frac{1}{2} \quad y = \frac{26}{4} = 6 \frac{1}{2}
\]

Part C) The circular indoor in-ground pool has a diameter of 7 inches on the blueprint. What is the actual area of the pool? **Show all work.** EXPLAIN what you did and why.

\[
\frac{\frac{1}{4} \text{ in}}{1 \text{ ft}} = \frac{7 \text{ in}}{x} \quad A = \pi r^2
\]

\[
4 \cdot \frac{x}{4} = 7 \cdot 4
\]

\[
x = 28
\]

Diameter \(\rightarrow 28 \text{ ft}\)

Radius \(\rightarrow 14 \text{ ft}\)

\[
A = (3.14)(14)^2 = 615.44 \text{ ft}^2
\]

First, I used a proportion to find the actual diameter of the pool.

Then I cut that length in half to find the radius.

Finally, I used the radius to calculate the area of the circular pool.