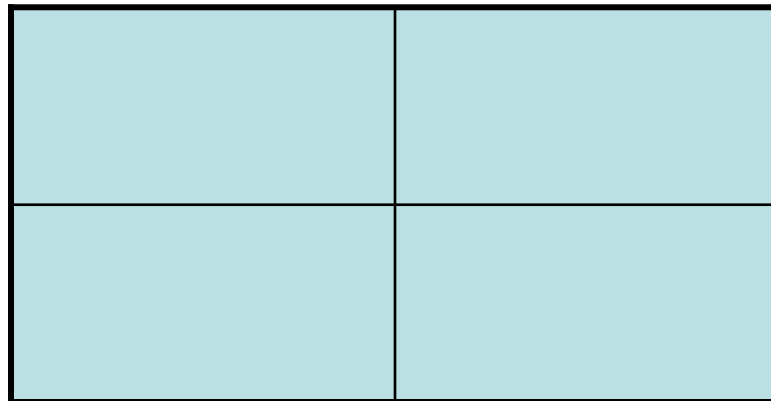


Steve's Box Converter



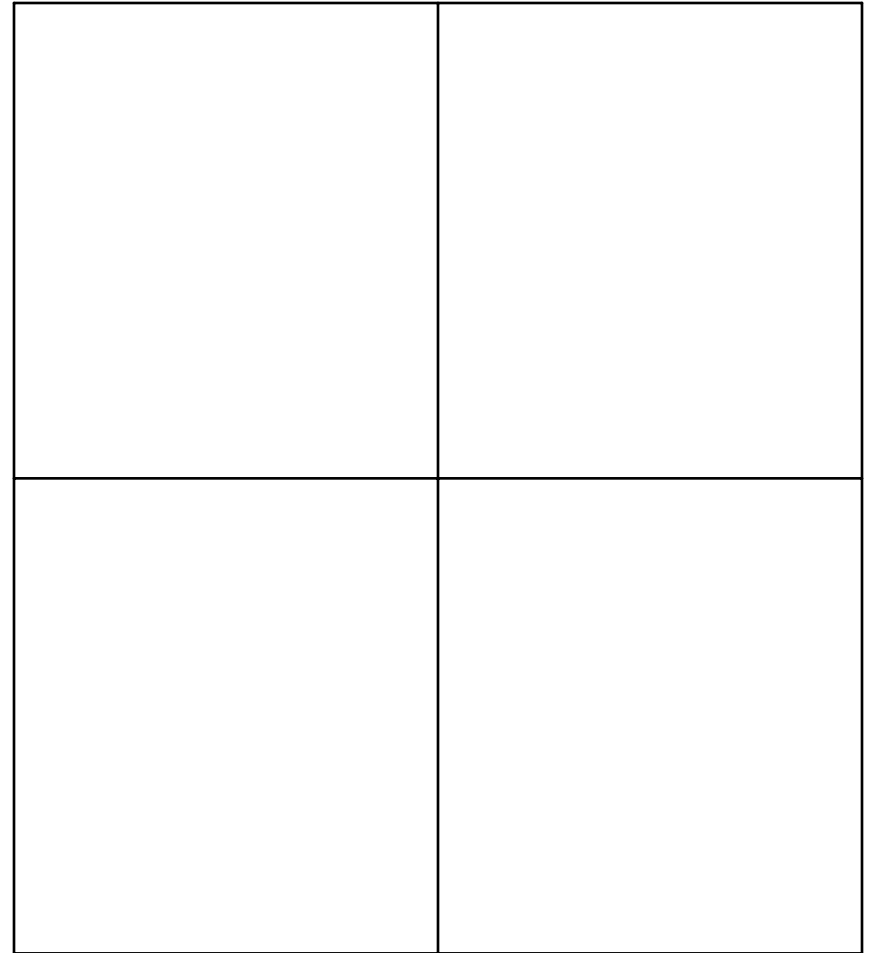
Steve's Box Converter

6 cf = ??? gal

Steve's Box Converter

$$6 \text{ cf} = ??? \text{ gal}$$

- Here's a fun tool to help you convert almost anything to anything in water & wastewater math
- Let's start off with a square box



Steve's Box Converter

6 cf = ??? gal

- Next, place the conversion in the box on the left side
- Let's use
 $1 \text{ cf} = 7.5 \text{ gal}$
- Place 1 cf in top left box (cell)
- Place 7.5 gal in bottom left box (cell)

1 cf	
7.5 gal	

Steve's Box Converter

6 cf = ??? gal

- OK, now we're ready to convert
- Let's say we trying to convert 6 cf to gallons
- Place 6 cf in the upper right box
 - That is, next to the conversion factor with the same units of dimension, cf

1 cf	6 cf
7.5 gal	

Steve's Box Converter

$$6 \text{ cf} = ??? \text{ gal}$$

- To get the answer, multiply the highlighted “cross cells”
 - Cross multiply
- The borders of the cells kind of look like a large **X** on its side

1 cf	6 cf
7.5 gal	

Here's How It Would Look If We Rotated the Cells

6 cf = ??? gal

7.5 gal

6 cf

Steve's Box Converter

7.5 gal/cf x 6 cf = 45 gal

- $7.5 \times 6 = 45 \text{ gal}$

1 cf	6 cf
7.5 gal	45 gal

How About Cubic Feet?

$$150 \text{ gal} = ??? \text{ cf}$$

- To get cubic feet, we start out the same way
 - Place 1 cf in top left box
 - Place 7.5 gal in bottom left box



Steve's Box Converter

150 gal = ??? cf

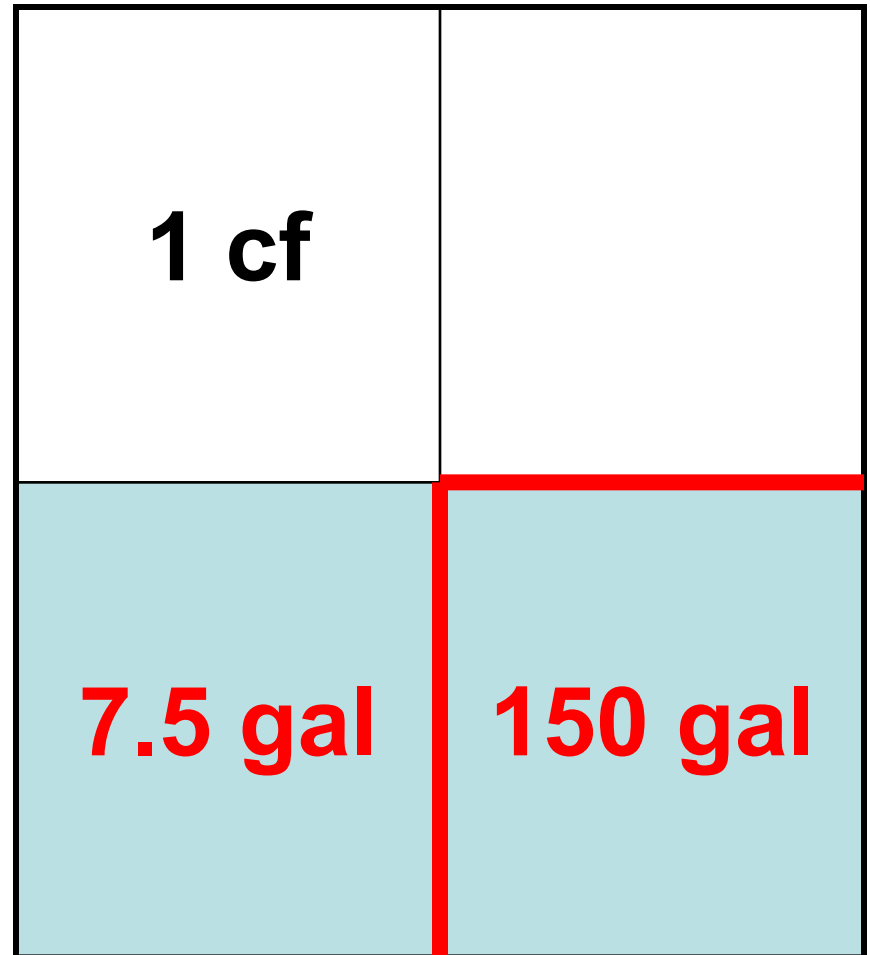
- Place 150 gal in the lower right box
 - That is, next to the conversion factor with the same units of dimension, gal

1 cf	
7.5 gal	150 gal

Steve's Box Converter

150 gal = ??? cf

- If you look just right, you can see the long hand division that we used before calculators



Here's How It'd Look

150 gal = ??? cf



7.5 gal 150 gal

Steve's Box Converter

$$150 \text{ gal} \div 7.5 = 20 \text{ cf}$$

1 cf	20 cf
7.5 gal	150 gal

Steve's Box Converter

- Pretty cool; pretty easy!!!
- So let's recap what we've done
 1. Draw a box
 2. Fill in the conversions in the left cells
 3. Place the number that you wish to be converted in the box (cell) next to the conversion with the same units of measurement
 4. Based on it's position, do the mathematical operation and there's your answer!!!

Want More Practice?

20 psi = ??? ft of head

Steve's Box Converter

20 psi = ??? ft of head

1. Draw the box
2. Fill in the conversions

1 psi = 2.31 ft

OR

1 ft = 0.433 psi

3. Let's use

1 psi = 2.31 ft

1 psi	
2.31 ft	

Steve's Box Converter

20 psi = ??? ft of head

- Place the number that you wish to be converted in the box (cell) next to the conversion with the same units of measurement

1 psi	20 psi
2.31 ft	

Steve's Box Converter

20 psi = ??? ft of head

4. Based on it's position, do the mathematical operation

– **Cross multiply**

1 psi	20 psi
2.31 ft	

Steve's Box Converter

$$2.31 \text{ ft/psi} \times 20 \text{ psi} = 46.2 \text{ ft}$$

1 psi	20 psi
2.31 ft	46.2 ft

Steve's Box Converter

20 psi = ??? ft of head

1. Now, let's try

1 ft = 0.433 psi

1 ft	
0.433 psi	

Steve's Box Converter

20 psi = ??? ft of head

Place the number that you wish to be converted in the box (cell) next to the conversion with the same units of measurement

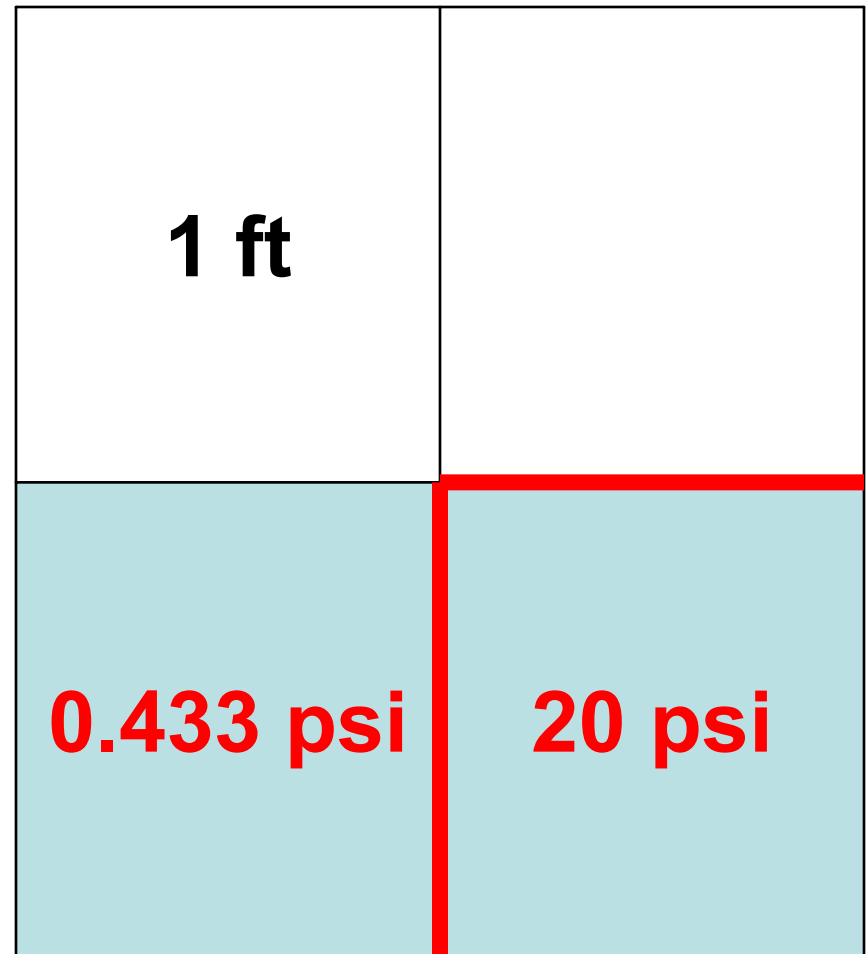
1 ft	
0.433 psi	20 psi

Steve's Box Converter

20 psi = ??? ft of head

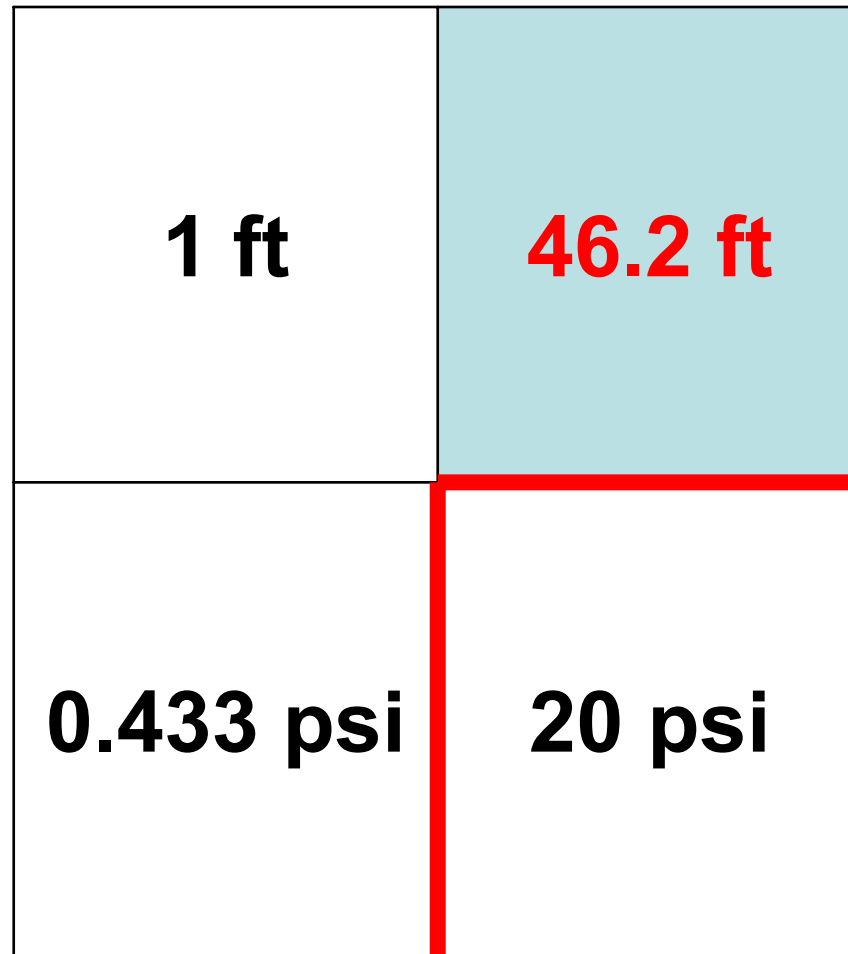
Based on it's position, do the mathematical operation

– **Divide**



Steve's Box Converter

$$20 \text{ psi} \div 0.433 \text{ psi/ft} = 46.2 \text{ ft}$$



Steve's Box Converter

- One last point
 - **Always set up your conversion so that the dimension starting with 1 is on the left side of the equal sign, for example**

$$1 \text{ gal} = 8.34 \text{ lbs}$$

- Have fun!!!