Unit Conversion Problems:

After much tinkering, Shane's time machine finally works! For his first trip, Shane will travel 25 years into the future. If his time machine uses 3 kilowatts of power to transport him 1 month into the future, how many kilowatts of power will it use for his first trip?

Write your answer as a whole number, decimal, or simplified fraction. Do not round.

Set up the "Picket fence"

$$\frac{25\ \cancel{years}}{1}\cdot\frac{12\ \cancel{months}}{1\ \cancel{year}}\cdot\frac{3\ kilowatts}{1\ \cancel{month}}=900\ kilowatts.$$

Question

To celebrate his soccer team's last game of the season, Duncan is making 4 batches of chocolate chunk brownies. If Duncan's recipe calls for 500 grams of sugar per batch, how many kilograms of sugar should he buy?

Write your answer as a whole number, decimal, or simplified fraction. Do not round.

$$\frac{4\ \cancel{batches}}{1}\cdot\frac{500\ \cancel{grams}}{1\ \cancel{batch}}\cdot\frac{1\ kilogram}{1000\ \cancel{grams}}=2\ kilograms$$

Question

Paula and her friends are planning a superhero movie marathon. Paula is in charge of the popcorn, so she buys a 2-pound jar of unpopped kernels. The jar's label says that 1 ounce of kernels will make 1 quart of popcorn. How many cups of popcorn will her jar make?

Hint: There are 16 ounces in 1 pound. There are 4 cups in 1 quart.

Write your answer as a whole number, decimal, or simplified fraction. Do not round.

$$\frac{2\ \cancel{pounds}}{1}\cdot\frac{16\ \cancel{ounces}}{1\ \cancel{pound}}\cdot\frac{1\ \cancel{quart}}{1\ \cancel{ounce}}\cdot\frac{4\ cups}{1\ \cancel{quart}}=128\ cups$$