Application of Percent

1. A basketball player successfully makes 88 out of 105 free throws. What is the player's successful free throw percentage?

2. The student population at a community college is 69% female. If the student population is 32,342 students, how many students are female? How many students are male?
3. How much ammonia is in a 80 ml bottle of ammonia solution that is marked 35% ammonia? How much water is in the solution.

4. At a community college 28% of a graduating class took chemistry. If 427 students from this graduating class took chemistry, how many students are in this graduating class?
1. A basketball player successfully makes 88 out of 105 free throws. What is the player's successful free throw percentage? 

\[(A \text{ Percentage}) \text{ of } (a \text{ total}) \text{ is } (a \text{ portion})\]

\[\frac{x}{105} = \frac{88}{105}\]

\[105x = 88\]

\[x = \frac{88}{105}\]

\[x = 0.8381\]

\[x = 83.81\%\]

2. The student population at a community college is 59% female. If the student population is 32,342 students, how many students are female? How many students are male? 

\[(A \text{ percent}) \text{ of } (a \text{ total}) \text{ is } (a \text{ portion})\]

\[0.59 \cdot 32,342 = x\]

\[(0.59)(32,342) = x\]

\[19,081.78 = x\]

\[19,082 = x\]

Rounded to nearest whole number: 19,082 females
3. How much ammonia is in a 80 ml bottle of ammonia solution that is marked 35% ammonia? How much water is in the solution.  
(A percent) of (a total) is (a portion) 
$$0.35 \times 80 = x$$

$$0.35 \times 80 = x$$
$$28 = x$$

Therefore of the 80 ml of solution, 28 ml is ammonia. So to get the amount of water we subtract 28 from 80! 

$$80 - 28 = 52 \text{ ml of water}$$

4. At a community college 28% of a graduating class took chemistry. If 427 students from this graduating class took chemistry, how many students are in this graduating class? 
(A percent) of (a total) is (a portion) 
$$0.28 \times x = 427$$

$$\frac{0.28 \times 427}{0.28} = x$$

$$x = 1525 \text{ total students}$$