Percent Population Problems Worksheet

1. In one year's time, 20% of Ms. McElroy's investments increased by 5%, 30% of her investments decreased by 5%, and 50% of her investments increased by 3%. By what percent did the total of her investments increase?

2. Jodie spent 25% less buying her English reading book than Claudia. Gianna spent 9% less than Claudia. Gianna spent more than Jodie by what percent?

3. Mr. Ellis is a teacher who tutors students after school. Of the students he tutors, 30% need help in computer science and the rest need assistance in math. Of the students who need help in computer science, 40% are enrolled in Mr. Ellis's class during the school day. Of the students who need help in math, 25% are enrolled in his class during the school day. What percent of the after-school students are enrolled in Mr. Ellis's classes?

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1. In one year's time, 20% of Ms. McElroy's investments increased by 5%, 30% of her investments decreased by 5%, and 50% of her investments increased by 3%. By what percent did the total of her investments increase?

    Let n represent the dollar amount of Ms. McElroy's investments before the changes occurred during the year

    After the changes, the following represents the dollar amount of her investments:

$$0.2n(1.05) + 0.3n(0.95) + 0.5n(1.03)$$
$$= 0.21n + 0.285n + 0.515n$$
$$= 1.01n$$

    Since $1.01 = 101\%$, Ms. McElroy's total investments increased by 1%.

2. Jodie spent 25% less buying her English reading book than Claudia. Gianna spent 9% less than Claudia. Gianna spent more than Jodie by what percent?

    Let c represent the amount Claudia spent, in dollars. The number of dollars Jodie spent was (1-0.25)c = $0.75c$, and the number of dollars Gianna spent was (1-0.09)c = $0.91c$.

$0.91c \div 0.75c = \frac{91}{75} \times 100\% = 121\frac{1}{3}\%$. *Gianna spent* $21\frac{1}{3}\%$ *more than Jodie.*

3. Mr. Ellis is a teacher who tutors students after school. Of the students he tutors, 30% need help in computer science and the rest need assistance in math. Of the students who need help in computer science, 40% are enrolled in Mr. Ellis's class during the school day. Of the students who need help in math, 25% are enrolled in his class during the school day. What percent of the after-school students are enrolled in Mr. Ellis's classes?

Let t represent the after-school students tutored by Mr. Ellis.

Computer science after-school students: $0.3t$
Math after-school students: $0.7t$

After-school computer science students who are also Mr. Ellis's students: $0.4 \times 0.3t = 0.12t$
After-school math students who are also Mr. Ellis's students: $0.25 \times 0.7t = 0.175t$

Number of after-school students who are enrolled in Mr. Ellis's classes: $0.12t + 0.175t = 0.295t$

Out of all the students Mr. Ellis tutors, 29.5% of the tutees are enrolled in his classes.

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