Percent Population Problems Worksheet

1. A school has 60% girls and 40% boys. If 20% of the girls wear glasses and 40% of the boys wear glasses, what percent of all students wears glasses?

2. The weight of the first of three containers is 12% more than the second, and the third container is 20% lighter than the second. By what percent is the first container heavier than the third container?

3. Matthew's pet dog is 7% heavier than Harrison's pet dog, and Janice's pet dog is 20% lighter than Harrison's. By what percent is Matthew's dog heavier than Janice's?

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1. A school has 60% girls and 40% boys. If 20% of the girls wear glasses and 40% of the boys wear glasses, what percent of all students wears glasses?

   Let n represent the number of students in the school.

   The number of girls is $0.6n$. The number of boys is $0.4n$.

   The number of girls wearing glasses is $0.2(0.6n) = 0.12n$.

   The number of boys wearing glasses is $0.4(0.4n) = 0.16n$

   The total number of students wearing glasses is $0.12n + 0.16n = 0.28n$.

   $0.28 = 28\%$, so 28% of the students wear glasses.

2. The weight of the first of three containers is 12% more than the second, and the third container is 20% lighter than the second. By what percent is the first container heavier than the third container?

   Let n represent the weight of the second container

   The weight of the first container is $(1 + 0.12)n = 1.12n$

   The weight of the third container is $(1 - 0.2)n = 0.80n$

   $1.12n \div 0.8n = 1.4$.
   $1.4 \times 100\% = 140\%$, which also shows that the first container is 40% heavier than the third container.

3. Matthew's pet dog is 7% heavier than Harrison's pet dog, and Janice's pet dog is 20% lighter than Harrison's. By what percent is Matthew's dog heavier than Janice's?

   Let h represent the weight of Harrison's dog.

   Matthew's dog is $1.07h$, and Janice's dog is $0.8h$.

   Since $1.07 \div 0.8 = \frac{107}{80} = 1.3375$, Mathew's dog is 33.75% heavier than Janice's dog.