Percent Population Problems Worksheet

1. One container is filled with a mixture that is 30% acid. A second container is filled with a mixture that is 50% acid. The second container is 50% larger than the first, and the two containers are emptied into a third container. What percent of acid is the third container?

2. The store's markup on a wholesale item is 40%. The store is currently having a sale, and the item sells for 25% off the retail price. What is the percent of profit made by the store?

3. During lunch hour at a local restaurant, 90% of the customers order a meat entrée and 10% order a vegetarian entrée. Of the customers who order a meat entrée, 80% order a drink. Of the customers who order a vegetarian entrée, 40% order a drink. What is the percent of customers who order a drink with their entrée.

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1. One container is filled with a mixture that is 30% acid. A second container is filled with a mixture that is 50% acid. The second container is 50% larger than the first, and the two containers are emptied into a third container. What percent of acid is the third container?

Let t be the amount of mixture in the first container. Then the second container has 1.5t, and the third container has 2.5t.

The amount of acid in the first container is 0.3t, the amount of acid in the second container is $0.5(1.5t) = 0.75t$, and the amount of acid in the third container is $1.05t$. The percent of acid in the third container is $\frac{1.05}{2.5} \times 100\% = 42\%$.

2. The store's markup on a wholesale item is 40%. The store is currently having a sale, and the item sells for 25% off the retail price. What is the percent of profit made by the store?

Let w represent the wholesale price of an item.

Retail price: $1.4w$

Sale price: $1.4w - (1.4w \times 0.25) = 1.05w$

The store still makes a 5% profit on a retail item that is on sale.

3. During lunch hour at a local restaurant, 90% of the customers order a meat entrée and 10% order a vegetarian entrée. Of the customers who order a meat entrée, 80% order a drink. Of the customers who order a vegetarian entrée, 40% order a drink. What is the percent of customers who order a drink with their entrée.

Let e represent lunch entrées.

Meat entrées: $0.9e$

Vegetarian entrées: $0.1e$

Meat entrées with drinks: $0.9e \times 0.8 = 0.72e$

Vegetarian entrées with drinks: $0.1e \times 0.4 = 0.04e$

Entrées with drinks: $0.72e + 0.04e = 0.76e$. *Therefore, 76% of lunch entrées are ordered with a drink.*