

Cypress College Math Review: Mixture Word Problems

Solution Mixture Problems:

1. Units for each term in any equation must match.
2. Formula used for solution mixture problems.
3. How the percentages relate to each other.
4. How the amounts relate to each other.

Ex. 1) Sonya has a 55% antifreeze solution and a 10% antifreeze solution. She wants 30 gal of a 49% antifreeze solution. How many gallons of each must be mixed to get the desired solution?

Ex. 2) A chemist has 3 ounces of a 9% alcohol solution. How many ounces of a 17% alcohol solution must he add in order to get a 15% alcohol solution?

Ex. 3) How many liters of pure acid must be mixed with a 25% acid solution to get 10 liters of a 40% acid solution?

Ex. 4) How much water should be evaporated from 240 gallons of a 3% salt solution to produce a 5% salt solution?

Value Mixture Problems

1. Formula used for value mixture problems.

2. How the prices relate to each other.

Ex. 5) How many pounds of peanuts that sell for \$1.80 per pound should be mixed with 3 pounds of cashews that sell for \$4.50 per pound to get a mixture that sells for \$2.61 per pound?

Ex. 6) In a local supermarket hamburger sells for \$3.50 per pound, and ground sirloin sells for \$4.20 per pound. How many pounds of each should be mixed in order to obtain 30 pounds of a mixture that sells for \$3.78 per pound?

Extra Practice – Try these on your own, then check with the answers below.

1. A 20-pound bag of cement mix contains 25% cement. How much pure cement must be added to produce a cement mix that is 40% cement?

2. How much water must be evaporated from 32 ounces of a 4% salt solution to make a 6% salt solution?

3. How many ounces of a 7% acid solution and how many ounces of a 23% acid solution must be mixed to obtain 20 oz. of a 17% solution?

4. Martha wants to create a new type of tea. She wants to mix chamomile tea that sells for \$7.50/oz. with Earl Grey tea that sells for \$5.00/oz. She would like 60 oz. of the new tea. How much of each of the teas would be needed so that the resulting mixture would sell for \$6.00/oz.?

5. 32 pounds of peanut M&M's worth \$2.25 per pound are mixed with 28 pounds of regular M&M's worth \$1.50 per pound. What is the price per pound of the mixture?

6. How many tons of hay at \$125 per ton must be mixed with 70 tons of hay at \$75 per ton to have hay that is valued at \$90 per ton?

Answers

1. 5 pounds of the pure cement should be mixed in.
2. $10 \frac{2}{3}$ or 10.7 ounces of water should be evaporated off.
3. 7.5 ounces of the 7% acid solution should be mixed with 12.5 ounces of the 23% acid solution.
4. 24 ounces of chamomile tea should be mixed with 36 ounces of the Earl Grey tea to make the desired combination.
5. The price of the mixture will be \$1.90 per pound.
6. 30 tons of the \$125 per ton hay should be used.