

TEST: Solving Mixture Problems

1. How many quarts of water must be added to 18 quarts of a 32% alcohol solution to dilute it to a solution that is only 12% alcohol?
2. Express, in terms of x , the value, in cents, of x pounds of 40-cent cookies and $(30 - x)$ pounds of 50-cent cookies.
3. How many pounds of nuts selling for 70 cents a pound must be mixed with 30 pounds of nuts selling at 90 cents a pound to make a mixture that will sell for 85 cents a pound?
4. A container holds 10 pints of a solution which is 20 % acid. If 3 quarts of pure acid are added to the container, what percent of resulting mixture is acid?
5. A solution of 60 quarts of sugar and water is 20% sugar. How much water must be added to make a solution that is 5% sugar?
6. How much water must be evaporated from 240 pounds of a solution that is 3% alcohol to strengthen to a solution that is 5% alcohol?
7. How many quarts of water must be added to 40 quarts of 5% acid solution to dilute it to a 2% solution?
8. How much cream that is 20% butterfat should be mixed with milk that is 5% butterfat to get 10 gallons of cream that is 14% butterfat?
9. How much of a 90% alloy must be combined with a 70% gold alloy in order to make 60 ounces of an 85% gold alloy?
10. How much of an alloy that is 40% zinc should be added to 75 pounds of an alloy that is 65% zinc to get an alloy that is 50% zinc?
11. How much of a solution that is 18% fertilizer must be mixed with a solution that is 30% fertilizer to get 50 gallons of a solution that is 27% fertilizer?
13. A merchant blends a \$2.50 per pound tea with a \$3.75 per pound tea to get 10 pounds of tea costing \$3.00 per pound. How many pounds of each did the merchant use?
14. A candy maker mixes some candy costing \$1.25 a pound with some candy costing \$0.75 per pound to get 5 pounds of candy costing \$0.90 per pound. How many pounds of each did he use?
15. A baker has 8 pounds of cookies costing \$1.50 per pound and wants to mix them with some cookies costing \$2.00 per pound. How much of the latter should be mixed in order to get a mixture of the two types of cookies costing \$1.80 per pound?
16. How many pounds of cashew nuts costing \$5.00 a pound must be mixed with peanuts costing \$2.20 a pound to get 20 pounds of nuts costing \$3.18 a pound?
17. A candy store owner wants to make 30 one-pound boxes of candy costing \$5.00 a box. If she wishes to use 12 pounds of candy costing \$8.00 per pound, what should be the cost of the other type of candy she should use?
18. How much antifreeze which is 30% alcohol must be removed from a 48-ounce container and replaced with water to make 48 ounces of a solution which is 20% alcohol?

19. A craftsperson has two alloys of silver. The first one is 70% ~~is~~^{and} the second one is 50% silver. How many ounces of each must have 12 ounces of an alloy which is 65% silver?

20. You need a 15% acid solution for a certain test, but your supplier only ships a 10% solution and a 30% solution. Rather than pay the hefty surcharge to have the supplier make a 15% solution, you decide to mix 10% solution with 30% solution, to make your own 15% solution. You need 10 liters of the 15% acid solution. How many liters of 10% solution and 30% solution should you use?

21. How many liters of a 70% alcohol solution must be added to 50 liters of a 40% alcohol solution to produce a 50% alcohol solution?

22. How many ounces of pure water must be added to 50 ounces of a 15% saline solution to make a saline solution that is 10% salt?

23. Find the selling price per pound of a coffee mixture made from 8 pounds of coffee that sells for \$9.20 per pound and 12 pounds of coffee that costs \$5.50 per pound.

24. How many pounds of lima beans that cost \$0.90 per pound must be mixed with 16 pounds of corn that costs \$0.50 per pound to make a mixture of vegetables that costs \$0.65 per pound?

25. Two hundred liters of a punch that contains 35% fruit juice is mixed with 300 liters (L) of another punch. The resulting fruit punch is 20% fruit juice. Find the percent of fruit juice in the 300 liters of punch.

26. Ten grams of sugar are added to a 40-g serving of a breakfast cereal that is 30% sugar. What is the percent concentration of sugar in the resulting mixture?

27. How many pounds of coffee worth \$1.00 per pound must be mixed with 15 pounds of coffee worth \$1.60 per pound to obtain a blend worth \$1.20 per pound?

28. How much water must be added to 14 oz of a 20% alcohol solution to obtain a 7% alcohol solution?

29. John has 20 ounces of a 20% of salt solution, how much salt should he add to make it a 25% solution?