

Mixture Problems
Unit 5: Real World Applications

Solve each question. Round your answer to the nearest hundredth when needed.

1. $6 m^3$ of soil containing 40% silt was mixed into $2 m^3$ of soil containing 52% silt. What is the silt content of the mixture?

2. 3 lbs. of premium salad mix was made by combining 2 lbs. of arugula which costs \$2/lbs. with 1 lbs. of spinach which cost \$5/lbs. Find the cost per lbs. of the mixture.

3. 12 kg of mixed nuts containing 26% peanuts were mixed with 9 kg of another kind of mixed nuts that contain 40% peanuts. Peanuts are what percent of the new mixture?

4. 21 oz. of Brand M Cinnamon was made by combining 7 oz. of Indonesian cinnamon which costs \$17/oz. with 14 oz. of Thai Cinnamon which costs \$14/oz. Find the cost per oz. of the mixture.

5. Lydia wants to make a 42% acid solution. She has already poured 5 gal of pure water into a beaker. How many gallons of a 72% acid solution must she add to this to create the desired mixture?

6. How many gallons of a 40% saline solution must be mixed with 8 gallons of a 90% saline solution to make a 60% solution?

7. How many oz. of mixed nuts that contain 35% peanuts must Sebastian add to 8 oz. of mixed nuts that contain 20% peanuts to make a mixture with 30% peanuts?

8. How much soil with 59% sand do you need to add to $1 ft^3$ of soil with 29% sand in order to make a soil with 53% sand?

9. Shyann and her brother mixed some soil and some silt to make $5 yd^3$ of soil with a 70% silt content. They used $2 yd^3$ of silt and $3 yd^3$ of a soil they purchased. What was the silt content of the soil they purchased?

10. Emily made a nut mixture that contains 40% peanuts by mixing 10 kg of mixed nuts that contain 58% peanuts and 15 kg of a different brand of mixed nuts. The second brand of mixed nuts contained what percent peanuts?

11. What is the price per lb. of Indonesian cinnamon if 3 lbs. were mixed with 2 lbs. of Thai cinnamon which costs \$9/lb. to make 5 lbs. of Brand M Cinnamon which costs \$12/lb.?

12. Perry and his brother mixed some soil and some silt to make 15 m^3 of soil with a 67% silt content. They used 6 m^3 of silt and 9 m^3 of soil they purchased. What was the silt content of the soil they purchased?

13. To build the garden of your dreams you need 12 m^3 of soil containing 37% sand. You have two types of soil you can combine to achieve this: soil with 52% sand and soil with 16% sand. How much of each soil should you use?

14. Farmer John's Produce Stand sells 30 lbs. bags of mixed nuts that contain 41% peanuts. To make his product he combines Brand A mixed nuts which contain 60% peanuts and Brand B mixed nuts which contain 30% peanuts. How much of each does he need to use?

15. Juan wants to make 15 ml of a 34% alcohol solution by mixing a 10% alcohol solution and a 40% alcohol solution. How much of each solution must he use?

16. Molly asked you to make 7 L of fruit punch that contains 44% fruit juice by mixing some amount of Brand A fruit punch and some amount of Brand B fruit punch. Brand A contains 48% fruit juice and Brand B contains 34% fruit juice. How much of each do you need?

17. Kristin wants to make 18 fl. oz. of a 45% sugar solution by mixing a 55% sugar solution and a 40% sugar solution. How much of each solution must she use?

18. A metallurgist needs to make 12 oz. of an alloy containing 75% gold. She is going to melt and combine one metal that is 40% gold with pure gold. How much of each should she use?