

Math 521A Word Problems

Investment:

1. John invested \$20000 in two accounts , one at 6% and the second at 9%. The interest earned from both accounts was the same. How much was invested at each rate?
2. A man invests \$30000, part at 8% per annum and the remainder at 6%. If the total interest earned was \$2000, how much was invested at each rate?
3. Ken invested \$500, part at 9% and the remainder at 11% per year. After a year, the interest earned on the 11% investment was \$20 more than what was earned on the 9% account. How much was invested at each rate?

Mixtures:

4. A chemist wishes to make 3 L of a 45% solution by mixing a 35% solution and a 60% solution. How much of each type should be used?
5. Jim has 6 L of a 3% boric acid solution. How much 12% solution must he add to produce a 4% boric acid solution?

Coins and Similar:

6. Kerry asked a bank teller to cash a \$390 check using \$20 bills and \$50 bills. If the teller gave her a total of 15 bills, how many of each type?
7. Last summer Bret earned \$32 a day and Sandra \$36 a day. Together they earned a total of \$3560. How much did each earn, if Bret worked 5 days more than Sandra?
8. Admission to a fair costs \$20 for two adults and one child and \$16 for one adult and two children. What is the cost for one adult?
9. A repairman charges a fixed amount for a service call in addition to his hourly rate. If a two-hour repair costs \$50 and a four-hour repair costs \$74. What is the repairman's hourly rate?
10. Two cement blocks and three bricks weigh 102 lb, as do one cement block and ten bricks. What does one brick weigh?

Motion:

11. The 1080 km trip from Madrid to Paris takes 2 hours flying against the wind and 1.5 hours flying with the wind. Find the speed of the plane in still air and the speed of the wind.
12. A jet can travel the 6800 km from New York to Paris in 6h 48 min with the wind. The return trip against the same wind takes 8 h. Find the rate of the jet in still air and the rate of the wind.

Ages:

13. Carol is twice Lorraine's age. In six years, the sum of their ages will be 30. How old are they now?
14. Seven years ago, my father's age was five times mine. Right now, his age is the sum of our two ages 7 years ago. How old am I?
15. Two years ago, Rick's age was 1 year less than twice Barb's age. Four years from now, Rick will be 8 years more than half Barb's age. How old is Rick?

2 digit numbers

16. A two-digit number is four times the sum of the digits. The tens digit is 3 less than the units digit. What is the number?

17. When the digits of a two-digit number are reversed, the new number is 54 less than the original number. If the sum of its digits is 8, what is the original number?

18. When the digits of a two-digit number are reversed, the new number is 36 more than the original number. The units digit is twice the tens digit. What is the original number?

Assorted:

19. To use a certain computer data base, the charge is \$30/h during the day and \$10.50/h at night. If a research company paid \$411 for 28h of use, find the number of hours charged at each rate.

20. The school band held a BBQ to raise money and sold hot dogs for \$2 and burgers for \$3. Total sales were \$437 and 173 items were sold. How many of each item sold?

21. A metallurgist needs 600g of a copper-zinc alloy, which should be 68% copper. He has alloy A, which is 60% copper, and alloy B, which is 75% copper. How many of each alloy should be melted and mixed together to meet his requirement?

22. Chris has \$3.85 in dimes and quarters. There are 25 coins. How many of each type?

23. Angus drove 555 km from Glasgow to London. He drove partly on the motorway at 110km/h and the rest on back roads at an average rate of 45 km/h. The trip took 8 hours. How far did he drive on each type of road?

24. One type of granola is 30% fruit, and another type is 15% fruit. What mass of each type of granola should be mixed to make 600g of granola that is 21% fruit?

In Mathpower 11, do:

#28/p.54,

#51/p.40,

#47, 48, and #49/p.39,

#34/p.26