

Systems of Linear Equations**Word Problems**

1. At an ice cream parlor, ice cream cones cost \$1.10 and sundaes cost \$2.35. One day, the receipts for a total of 172 cones and sundaes were \$294.20. How many cones were sold?
2. You purchase 8 gal of paint and 3 brushes for \$152.50. The next day, you purchase 6 gal of paint and 2 brushes for \$113.00. How much does each gallon of paint and each brush cost?
3. Shopping at Savers Mart, Lisa buys her children four shirts and three pairs of pants for \$85.50. She returns the next day and buys three shirts and five pairs of pants for \$115.00. What is the price of each shirt and each pair of pants?
4. Grandma's Bakery sells single-crust apple pies for \$6.99 and double-crust cherry pies for \$10.99. The total number of pies sold on a busy Friday was 36. If the amount collected for all the pies that day was \$331.64, how many of each type were sold?
5. Your teacher is giving you a test worth 100 points containing 40 questions. There are two-point and four-point questions on the test. How many of each type of question are on the test?
6. Suppose you are starting an office-cleaning service. You have spent \$315 on equipment. To clean an office, you use \$4 worth of supplies. You charge \$25 per office. How many offices must you clean to break even?
7. The math club and the science club had fundraisers to buy supplies for a hospice. The math club spent \$135 buying six cases of juice and one case of bottled water. The science club spent \$110 buying four cases of juice and two cases of bottled water. How much did a case of juice cost? How much did a case of bottled water cost?
8. On a canoe trip, Rita paddled upstream (against the current) at an average speed of 2 mi/h relative to the riverbank. On the return trip downstream (with the current), her average speed was 3 mi/h. Find Rita's paddling speed in still water and the speed of the river's current.
9. Kay spends 250 min/wk exercising. Her ratio of time spent on aerobics to time spent on weight training is 3 to 2. How many minutes per week does she spend on aerobics? How many minutes per week does she spend on weight training?
10. Suppose you invest \$1500 in equipment to put pictures on T-shirts. You buy each T-shirt for \$3. After you have placed the picture on a shirt, you sell it for \$20. How many T-shirts must you sell to break even?
11. A light plane flew from its home base to an airport 255 miles away. With a head wind, the trip took 1.7 hours. The return trip with a tail wind took 1.5 hours. Find the average airspeed of the plane and the average windspeed.
12. Suppose you bought supplies for a party. Three rolls of streamers and 15 party hats cost \$30. Later, you bought 2 rolls of streamers and 4 party hats for \$11. How much did each roll of streamers cost? How much did each party hat cost?
13. A new parking lot has spaces for 450 cars. The ratio of spaces for full-sized cars to compact cars is 11 to 4. How many spaces are for full-sized cars? How many spaces are for compact cars?
14. While on vacation, Kevin went for a swim in a nearby lake. Swimming against the current, it took him 8 minutes to swim 200 meters. Swimming back to shore with the current took half as long. Find Kevin's average swimming speed and the speed of the lake's current.
15. The local preschool ordered all new bicycles and tricycles for the new school year. Each bicycle and tricycle is shipped in its own box. Oddly, the manufacturer shipped all the wheels in a separate box. If there are 16 boxes of bicycles/tricycles total, and 45 wheels total, how many tricycles were ordered?
16. Quentin was challenged to a half-court shooting competition. For every half-court shot that he makes, he will earn 20 points. For each half-court shot he misses, he will lose 5 points. After 20 half-court shots, Quentin has zero points. How many half-court shots did he make?
17. At The Apple Pan, 4 burgers and 3 fries cost \$26.50. 5 burgers and 5 fries cost \$36.25. What is the cost for each item?
18. On December 13th, versus the Washington Wizards, Shaquille O'Neal scored his season high in points, 40. His 40 points were scored all on free throws and two-point baskets. He made a total of 25 shots. How many two-points baskets did Shaq make? Define variables, write and solve algebraic equations, and state the final answer in a complete sentence.
19. At The Apple Pan, two burgers and three orders of fries cost \$19.75. Five burgers and two orders of fries cost \$37. What is the cost for a burger and an order of fries?
20. At the Apple Pan, three steakburgers and two orders of fries cost \$18. Two steakburgers and three orders of fries cost \$15.75. What is the cost for one steakburger?
21. At McDonald's four cheeseburgers and three medium fries have a total of 2290 calories. Six cheeseburgers and two medium fries have 2560 calories. How many calories does each item contain?
22. On January 22nd, 2006, Kobe Bryant scored 81 points against the Toronto Raptors. Including three-pointers, two-pointers, and free-throws he made 46 shots. He made three times as many two-point shots as three-point shots. How many free-throws did Kobe Bryant make?

23. Smush Parker and Kobe Bryant are having a three-point shooting competition. For each shot made, the player earns three points. For each shot missed, the player loses five points. After 40 shots, Kobe has no points. How many shots did Kobe make?
24. The sum of two numbers is 24. Their difference is 15. What are the two numbers?
25. Sally has 20 coins in her piggy bank, all dimes and quarters. The total amount of money is \$3.05. How many of each coin does she have?
26. A group of people bought movies tickets at the AMC Century City. They bought a total of 7 tickets, some adult and some kid tickets. They spent a total of \$72. If adult tickets cost \$12 and kid tickets cost \$9, how much of each were purchased?
27. A Honda dealership sells both motorcycles and cars. There are a total of 200 vehicles on the dealership's lot. The detailer cleaned all the wheels of all the vehicles, which totaled 698 wheels. How many motorcycles are there on the lot?
28. A large McDonald's chocolate milkshake has 720 more calories than a double cheeseburger. Two double cheeseburgers and the large chocolate shake have a total of 2040 calories. How many calories are in each item?
29. A McDonald's apple pie has 90 more calories than their chocolate chip cookie. Two apple pies and three cookies have a total of 980 calories. How many calories are in each item?
30. For breakfast, Randy had two Egg McMuffins and a hash brown, totaling 750 calories. Jack only had one Egg McMuffin and a hash brown, totaling 450 calories. How many calories are in each item?
31. For lunch, Jack had a Big Mac and two small fries containing 1,000 calories. Randy had three Big Macs and two small fries for 2080. How many calories are in each item?
32. For dinner, Randy had 10 chicken McNuggets and a medium fries for 840 calories. Jack had 6 chicken McNuggets and two medium fries for 1036 calories. How many calories are there in each item?
33. Nate Kaeding, the place kicker for the San Diego Chargers, has scored 120 so far this season. He has scored all his points on 1-point extra point kicks and 3-point field goals. He has made a total of 66 kicks. How many of each kick has he made?
34. Nate Kaeding, the place kicker for the San Diego Chargers, has scored 120 so far this season. He has scored all his points on 1-point extra point kicks and 3-point field goals. He has made 12 more extra point kicks than field goals. How many of each kick has he made?
35. On November 4th, against the Houston Rockets, Ron Artest scored a total of 15 points, making a total of 9 shots. He scored all his points on 2-point and 3-point shots. How many of each type of shot did he make?
36. On November 4th, against the Houston Rockets, Ron Artest scored a total of 15 points, scoring all his points on 2-point and 3-point shots. He made three more 2-pointers than 3-pointers. How many of each type of shot did he make?
37. Sally needs a new car. She is trying to lessen her "carbon foot print", but at the same time she wants to spend her money wisely. She is deciding between the Lexus RX 450h (hybrid) and the Lexus RX 350. The RX 450h costs \$43,700 with anticipated gas costs of \$1,454 per year. The RX 350 costs \$38,650 with anticipated gas costs of \$2,078 per year. How many years will it take for the total costs of the two SUVs the same? What will the total cost be?
38. On a recent trip to The Apple Pan, Bob and Sally spent \$19.75 on two steakburgers and three orders of fries. On another trip, they spent \$24 on three steakburgers and two orders of fries. What is the cost of each?
39. At Billy's preschool, they have a total of 25 bicycles and tricycles. Among them all, there are 57 wheels. How many of each are there?
40. At Billy's preschool, they have bicycles and tricycles, with a total of 57 wheels. The number of bicycles is three less than three times the number of tricycles. How many of each are there?
41. Jack has a collection of new nickels and quarters. He has a total of 50 coins worth \$10.30. How many of each coin does he have?
42. Mac's wallet is full of \$5 and \$10 bills. He has 25 bills totaling \$230. How many of each bill does he have?
43. Marcy has a total of 100 dimes and quarters. If the total value of the coins is \$14.05, how many quarters does she have?
44. Members of a senior class held a car wash to raise funds for their senior prom. They charged \$3 to wash a car and \$5 to wash a pick-up truck or a sport utility vehicle. If they earned a total of \$275 by washing a total of 75 vehicles, how many cars did they wash?
45. At McDonalds, a chocolate chip cookie has 10 more calories than an ice cream cone. Together they have a total of 310 calories. How many calories does each contain?
46. At McDonalds, a cheeseburger has 200 fewer calories than a large fries. Two cheeseburgers and a large fries have 1100 calories. How many calories are in each item?
47. At McDonalds, a packet of ranch dressing has 10 more calories than eight side salads. Three side salads and two packets of ranch dressing have a total of 400 calories. How many calories are in each item?

48. On December 9th, Trevor Ariza, of the Houston Rockets, scored 34 points. What is odd about this is that he scored all 34 points only on 2-pointers and 3-pointers. He made a total of 15 shots. How many 3-pointers did he make?
49. For breakfast, Bill had a bacon, egg, and cheese biscuit and two hotcakes totaling 660 calories. Phil had a bacon, egg, and cheese biscuit and three hotcakes totaling 780 calories. How many calories are in one hotcake? One bacon, egg, and cheese biscuit?
50. For lunch, Moe had six chicken mc nuggets and two small fries for 736 calories. Jo had 10 chicken mc nuggets and two small fries for 920 calories. How many calories are in each chicken mc nugget? An order of small fries?
51. For dinner, Pat had a double cheeseburger and two medium fries totaling 1200 calories. Matt has two double cheeseburgers and one medium fries totaling 1260 calories. How many calories are in one double cheeseburger? One order of medium fries?
52. Two groups of people went to see Avatar in IMAX 3-D. The first group spent \$73.50 on two adult and three children tickets. The other group spent \$109.50 on five adult and two children tickets. What is the cost for each type of ticket?
53. Three ounces of bacon and four ounces of chicken have 66.7 grams of protein. Six ounces of bacon and three ounces of chicken have 89.4 grams of protein. How many grams of protein are there in one ounce of bacon? Chicken?
54. Five ounces of bacon and four ounces of chicken have 953 calories. Four ounces of bacon and three ounces of chicken have 753 calories.

Linear Inequalities and Systems of Linear Inequalities

Word Problems

1. Suppose your class is raising money for the Red Cross. You make \$5 on each basket of fruit and \$3 on each box of cheese that you sell. How many items of each type must you sell to raise more than \$150?
 - a. Write a linear inequality that describes the situation.
 - b. Graph the inequality.
 - c. Write two possible solutions to the problem.
2. Suppose you intend to spend no more than \$60 buying books. Hardback books cost \$12 and paperbacks cost \$5. How many books of each type can you buy?
 - a. Write a linear inequality that describes the situation.
 - b. Graph the inequality.
 - c. Write two possible solutions to the problem.
3. Suppose that for your exercise program, you either walk 5 mi/d or ride your bicycle 10 mi/d. How many days will it take you to cover a distance of at least 150 mi?
 - a. Write a linear inequality that describes the situation.
 - b. Graph the inequality.
 - c. Write two possible solutions to the problem.
4. In basketball you score 2 points for a field goal and 1 point for a free throw. Suppose that you have scored at least 3 points in every game this season, and have a season high score of 15 points in one game. How many field goals and free throws could you have made in any one game?
 - a. Write a system of two inequalities that describes this situation.
 - b. Graph the system to show all possible solutions.
 - c. Write one possible solution to the problem.
5. Suppose you need to use at least \$1.00 worth of stamps to mail a package. You have as many \$.03 stamps as you need but only four \$.32 stamps. How many of each stamp can you use?
 - a. Write a system of two inequalities that describes this situation.
 - b. Graph the system to show all possible solutions.
 - c. Write one possible solution to the problem.
6. A grandmother wants to spend at least \$40 but no more than \$60 on school clothes for her grandson. T-shirts sell for \$10 and pants sell for \$20. How many T-shirts and pants could she buy?
 - a. Write a system of two inequalities that describes this situation.
 - b. Graph the system to show all possible solutions.
 - c. Write two possible solutions to the problem.
7. Dwight Howard of the Orland Magic has played in 33 games this season. In those 33 games he has made no three-point baskets. Therefore, all his points have come on two-point shots and free throws (one-point). In each game he has made at least four shots, including free throws. Also, he has scored less than 27 points in each game. Graph the system of inequalities to show all possible solutions.