

Algebra 2

Name \_\_\_\_\_

## Systems Word Problems

- 1) The sum of two numbers is 19. Their difference is 1. What are the numbers?

$$\begin{array}{r} x + y = 19 \\ + x - y = 1 \\ \hline 2x = 20 \\ x = 10 \end{array} \quad y = 9$$

- 2) The senior classes at High School A and High School B planned separate trips to the county fair. The senior class at High School A rented and filled 4 vans and 9 buses with 468 students. High School B rented and filled 8 vans and 9 buses with 504 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.

$$\begin{array}{r} 4V + 9B = 468 \\ - (8V + 9B = 504) \\ \hline -4V = -36 \\ -\frac{4V}{-4} = \frac{-36}{-4} \quad V = 9 \end{array} \quad \begin{array}{r} 4(9) + 9B = 468 \\ 9B = 432 \\ \frac{9B}{9} = \frac{432}{9} \quad B = 48 \end{array}$$

- 3) The school that Ming goes to is selling tickets to a fall musical. On the first day of ticket sales the school sold 6 adult tickets and 4 student tickets for a total of \$34. The school took in \$46 on the second day by selling 6 adult tickets and 7 student tickets. Find the price of an adult ticket and the price of a student ticket.

$$\begin{array}{r} 6A + 4S = 34 \\ - 6A + 7S = 46 \\ \hline -3S = -12 \\ S = 4 \end{array} \quad \begin{array}{r} 6A + 4(4) = 34 \\ 6A = 18 \\ A = 3 \end{array}$$

- 4) Daniel and Julio are selling flower bulbs for a school fundraiser. Customers can buy bags of windflower bulbs and packages of crocus bulbs. Daniel sold 4 bags of windflower bulbs and 9 packages of crocus bulbs for a total of \$171. Julio sold 7 bags of windflower bulbs and 9 packages of crocus bulbs for a total of \$198. What is the cost each of one bag of windflower bulbs and one package of crocus bulbs?

$$\begin{array}{r} 4W + 9C = 171 \\ - 7W + 9C = 198 \\ \hline -3W = -27 \\ W = 9 \end{array} \quad \begin{array}{r} 4(9) + 9C = 171 \\ 9C = 135 \\ \frac{9C}{9} = \frac{135}{9} \\ C = 15 \end{array}$$

- 5) The senior classes at High School A and High School B planned separate trips to the local amusement park. The senior class at High School A rented and filled 14 vans and 2 buses with 272 students. High School B rented and filled 14 vans and 5 buses with 407 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.

- 6) The school that Julia goes to is selling tickets to a spring musical. On the first day of ticket sales the school sold 1 adult ticket and 5 child tickets for a total of \$27. The school took in \$24 on the second day by selling 1 adult ticket and 4 child tickets. What is the price each of one adult ticket and one child ticket?

- 7) Five times one number plus two times another number is 46. Six times the first number minus four times the other number is 36. Find the numbers.

$$\begin{array}{r}
 \cancel{2(5x + 2y = 46)} \\
 6x - 4y = 36 \\
 + 10x + 4y = 92 \\
 \hline
 16x = 128 \quad x = 8
 \end{array}$$

$$\begin{array}{r}
 6(8) - 4y = 36 \\
 -48 \\
 -4y = -12 \\
 y = 3
 \end{array}$$

- 8) Anthony has \$1.60 in quarters and dimes. He has 2 more dimes than quarters. How many of each coin does he have?

$$\begin{array}{l}
 .25q + .10d = 1.60 \\
 d = 2 + q
 \end{array}$$

$$\begin{array}{l}
 .25q + .10(2 + q) = 1.60 \\
 .25q + .20 + .10q = 1.60 \\
 .35q = 1.40 \\
 q = 4 \\
 d = 6
 \end{array}$$

- 9) Alberto and Jennifer each improved their yards by planting rose bushes and ivy. They bought their supplies from the same store. Alberto spent \$120 on 7 rose bushes and 13 pots of ivy. Jennifer spent \$150 on 14 rose bushes and 11 pots of ivy. Find the cost of one rose bush and the cost of one pot of ivy.

- 10) Pranav and Adam each improved their yards by planting grass sod and geraniums. They bought their supplies from the same store. Pranav spent \$32 on 12 ft<sup>2</sup> of grass sod and 4 geraniums. Adam spent \$38 on 11 ft<sup>2</sup> of grass sod and 8 geraniums. What is the cost of one ft<sup>2</sup> of grass sod and the cost of one geranium?

- 11) New York City is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 11 vans and 3 buses with 240 students. High School B rented and filled 3 vans and 9 buses with 540 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.
- 12) The school that Natalie goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 2 senior citizen tickets and 12 child tickets for a total of \$96. The school took in \$114 on the second day by selling 12 senior citizen tickets and 6 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.
- 13) Eight times one number plus twice the second number is 34. Seven times the first number minus three times the second number is 6. Find the numbers.
- 14) Joe's school is selling tickets to a fall musical. On the first day of ticket sales the school sold 4 senior citizen tickets and 5 child tickets for a total of \$78. The school took in \$197 on the second day by selling 11 senior citizen tickets and 12 child tickets. What is the price each of one senior citizen ticket and one child ticket?
- 15) Jenny and Abhasra are selling cookie dough for a school fundraiser. Customers can buy packages of white chocolate chip cookie dough and packages of oatmeal cookie dough. Jenny sold 6 packages of white chocolate chip cookie dough and 6 packages of oatmeal cookie dough for a total of \$180. Abhasra sold 5 packages of white chocolate chip cookie dough and 9 packages of oatmeal cookie dough for a total of \$226. What is the cost each of one package of white chocolate chip cookie dough and one package of oatmeal cookie dough?

- 16) Mary and Wilbur are selling wrapping paper for a school fundraiser. Customers can buy rolls of plain wrapping paper and rolls of shiny wrapping paper. Mary sold 9 rolls of plain wrapping paper and 11 rolls of shiny wrapping paper for a total of \$144. Wilbur sold 8 rolls of plain wrapping paper and 14 rolls of shiny wrapping paper for a total of \$166. What is the cost each of one roll of plain wrapping paper and one roll of shiny wrapping paper?
- 17) Shanice's school is selling tickets to a choral performance. On the first day of ticket sales the school sold 4 senior citizen tickets and 9 child tickets for a total of \$63. The school took in \$60 on the second day by selling 6 senior citizen tickets and 2 child tickets. What is the price each of one senior citizen ticket and one child ticket?
- 18) Alberto and Amy each improved their yards by planting grass sod and shrubs. They bought their supplies from the same store. Alberto spent \$120 on 12 ft<sup>2</sup> of grass sod and 12 shrubs. Amy spent \$56 on 7 ft<sup>2</sup> of grass sod and 5 shrubs. Find the cost of one ft<sup>2</sup> of grass sod and the cost of one shrub.
- 19) The school that Abhasra goes to is selling tickets to a spring musical. On the first day of ticket sales the school sold 3 adult tickets and 14 student tickets for a total of \$120. The school took in \$204 on the second day by selling 13 adult tickets and 8 student tickets. Find the price of an adult ticket and the price of a student ticket.
- 20) Frankie has \$0.95 in nickels and dimes. He has 11 coins in all. How many of each coin does he have?

Algebra 2

Name \_\_\_\_\_

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- 1) The sum of two numbers is 19. Their difference is 1. What are the numbers?

9 and 10

- 2) The senior classes at High School A and High School B planned separate trips to the county fair. The senior class at High School A rented and filled 4 vans and 9 buses with 468 students. High School B rented and filled 8 vans and 9 buses with 504 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.

Van: 9, Bus: 48

- 3) The school that Ming goes to is selling tickets to a fall musical. On the first day of ticket sales the school sold 6 adult tickets and 4 student tickets for a total of \$34. The school took in \$46 on the second day by selling 6 adult tickets and 7 student tickets. Find the price of an adult ticket and the price of a student ticket.

adult ticket: \$3, student ticket: \$4

- 4) Daniel and Julio are selling flower bulbs for a school fundraiser. Customers can buy bags of windflower bulbs and packages of crocus bulbs. Daniel sold 4 bags of windflower bulbs and 9 packages of crocus bulbs for a total of \$171. Julio sold 7 bags of windflower bulbs and 9 packages of crocus bulbs for a total of \$198. What is the cost each of one bag of windflower bulbs and one package of crocus bulbs?

bag of windflower bulbs: \$9, package of crocus bulbs: \$15

- 5) The senior classes at High School A and High School B planned separate trips to the local amusement park. The senior class at High School A rented and filled 14 vans and 2 buses with 272 students. High School B rented and filled 14 vans and 5 buses with 407 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.

Van: 13, Bus: 45

- 6) The school that Julia goes to is selling tickets to a spring musical. On the first day of ticket sales the school sold 1 adult ticket and 5 child tickets for a total of \$27. The school took in \$24 on the second day by selling 1 adult ticket and 4 child tickets. What is the price each of one adult ticket and one child ticket?

adult ticket: \$12, child ticket: \$3

- 7) Five times one number plus two times another number is 46. Six times the first number minus four times the other number is 36. Find the numbers.

8 and 3

- 8) Anthony has \$1.60 in quarters and dimes. He has 2 more dimes than quarters. How many of each coin does he have?

4 Quarters and 6 Dimes

- 9) Alberto and Jennifer each improved their yards by planting rose bushes and ivy. They bought their supplies from the same store. Alberto spent \$120 on 7 rose bushes and 13 pots of ivy. Jennifer spent \$150 on 14 rose bushes and 11 pots of ivy. Find the cost of one rose bush and the cost of one pot of ivy.

rose bush: \$6, pot of ivy: \$6

- 10) Pranav and Adam each improved their yards by planting grass sod and geraniums. They bought their supplies from the same store. Pranav spent \$32 on 12 ft<sup>2</sup> of grass sod and 4 geraniums. Adam spent \$38 on 11 ft<sup>2</sup> of grass sod and 8 geraniums. What is the cost of one ft<sup>2</sup> of grass sod and the cost of one geranium?

ft<sup>2</sup> of grass sod: \$2, geranium: \$2

- 11) New York City is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 11 vans and 3 buses with 240 students. High School B rented and filled 3 vans and 9 buses with 540 students. Each van and each bus carried the same number of students. Find the number of students in each van and in each bus.

Van: 6, Bus: 58

- 12) The school that Natalie goes to is selling tickets to a choral performance. On the first day of ticket sales the school sold 2 senior citizen tickets and 12 child tickets for a total of \$96. The school took in \$114 on the second day by selling 12 senior citizen tickets and 6 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.

senior citizen ticket: \$6, child ticket: \$7

- 13) Eight times one number plus twice the second number is 34. Seven times the first number minus three times the second number is 6. Find the numbers.

3 and 5

- 14) Joe's school is selling tickets to a fall musical. On the first day of ticket sales the school sold 4 senior citizen tickets and 5 child tickets for a total of \$78. The school took in \$197 on the second day by selling 11 senior citizen tickets and 12 child tickets. What is the price each of one senior citizen ticket and one child ticket?

senior citizen ticket: \$7, child ticket: \$10

- 15) Jenny and Abhasra are selling cookie dough for a school fundraiser. Customers can buy packages of white chocolate chip cookie dough and packages of oatmeal cookie dough. Jenny sold 6 packages of white chocolate chip cookie dough and 6 packages of oatmeal cookie dough for a total of \$180. Abhasra sold 5 packages of white chocolate chip cookie dough and 9 packages of oatmeal cookie dough for a total of \$226. What is the cost each of one package of white chocolate chip cookie dough and one package of oatmeal cookie dough?

package of white chocolate chip cookie dough: \$11, package of oatmeal cookie dough: \$19

- 16) Mary and Wilbur are selling wrapping paper for a school fundraiser. Customers can buy rolls of plain wrapping paper and rolls of shiny wrapping paper. Mary sold 9 rolls of plain wrapping paper and 11 rolls of shiny wrapping paper for a total of \$144. Wilbur sold 8 rolls of plain wrapping paper and 14 rolls of shiny wrapping paper for a total of \$166. What is the cost each of one roll of plain wrapping paper and one roll of shiny wrapping paper?

roll of plain wrapping paper: \$5, roll of shiny wrapping paper: \$9

- 17) Shanice's school is selling tickets to a choral performance. On the first day of ticket sales the school sold 4 senior citizen tickets and 9 child tickets for a total of \$63. The school took in \$60 on the second day by selling 6 senior citizen tickets and 2 child tickets. What is the price each of one senior citizen ticket and one child ticket?

senior citizen ticket: \$9, child ticket: \$3

- 18) Alberto and Amy each improved their yards by planting grass sod and shrubs. They bought their supplies from the same store. Alberto spent \$120 on 12 ft<sup>2</sup> of grass sod and 12 shrubs. Amy spent \$56 on 7 ft<sup>2</sup> of grass sod and 5 shrubs. Find the cost of one ft<sup>2</sup> of grass sod and the cost of one shrub.

ft<sup>2</sup> of grass sod: \$3, shrub: \$7

- 19) The school that Abhasra goes to is selling tickets to a spring musical. On the first day of ticket sales the school sold 3 adult tickets and 14 student tickets for a total of \$120. The school took in \$204 on the second day by selling 13 adult tickets and 8 student tickets. Find the price of an adult ticket and the price of a student ticket.

adult ticket: \$12, student ticket: \$6

- 20) Frankie has \$0.95 in nickels and dimes. He has 11 coins in all. How many of each coin does he have?

3 Nickels and 8 Dimes