Systems of Equations Word Problems

Name: _____   Date: _____

1. The only coins that Alexis has are dimes and quarters.

    - Her coins have a total value of $5.80.
    - She has a total of 40 coins.

    Which of the following systems of equations can be used to find the number of dimes, d, and the number of quarters, q, that Alexis has?

    A. $d + q = 5.80$
    $40d + 40q = 5.80$

    B. $d + q = 40$
    $5.80d + 5.80q = 40$

    C. $d + q = 5.80$
    $0.10d + 0.25q = 40$

    D. $d + q = 40$
    $0.10d + 0.25q = 5.80$

2. Ken and Jerome went to the same electronics store.

    - Ken bought 2 video games and 1 DVD for a total of $105.
    - Jerome bought 1 video game and 4 DVDs for a total of $105.

    Each video game cost v dollars and each DVD cost d dollars.

    Which system of equations can be used to find the cost, in dollars, of each video game and each DVD at the store?

    A. $v + 2d = 105$ B. $2v + d = 105$
    $v + 4d = 105$ $4v + d = 105$

    C. $2v + d = 105$ D. $2v + 4d = 105$
    $v + 4d = 105$ $v + d = 105$

3. Sally and her friend Lucie started saving money for their vacation on the same day. Sally started with $150 and plans to add $5 to the total every week. Lucie started with $200 and plans to add $3 to the total every week.

    After how many weeks will Sally's savings be the same as Lucie's savings?

4. A flower shop sells the two flower arrangements shown below.

"Thinking of You"	"Thank You"
$15	$27

Key

rose   daisy
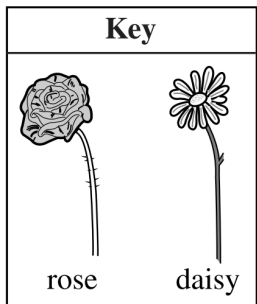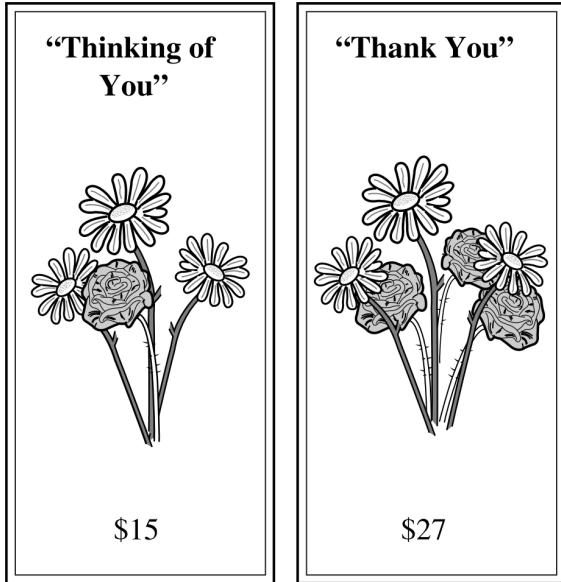
Each rose has the same price, and each daisy has the same price. What is the price of one rose?

A. $3   B. $6   C. $9   D. $12

5. If 4 notebooks and 3 packages of pens cost $7.43 and 5 notebooks and 2 packages of pens cost $7.03, what is the cost of 1 notebook?

A. $0.89   B. $0.79   C. $1.29   D. $1.09

6. *Use the information in the box below to answer the question.*

SALE

Roger's Lumberyard

Roger's

Landscaping Timbers
5-foot timber **$6.00 ea.**
8-foot timber **$9.00 ea.**

Sale starts
next Saturday
at 9 A.M.

Roger's Lumberyard
375 Oakwood Rd.
Woodpark, MA 00110

Misha and his sister are using 5-foot and 8-foot landscaping timbers to enclose a vegetable garden. They bought 40 timbers. The total cost for the timbers was $288. Which pair of equations could be used to find the number of timbers of each size that they bought?

A. $6x + 9y = 40$ and $x + y = 288$

B. $x + y = 40$ and $5x + 8y = 288$

C. $5x + 8y = 40$ and $6x + 9y = 288$

D. $x + y = 40$ and $6x + 9y = 288$

7. Mr. Johnson purchased 20 concert tickets for a total of $225. The concert tickets cost $15 for adults and $10 for children under 12.

How many tickets for children under 12 did Mr. Johnson purchase?

A. 5   B. 9   C. 15   D. 18

8. **College Savings**

   Juan's family is saving money for Juan to go to college. They currently have $2,500 in the bank and save $150 each month. Alex's family is also saving for college. They currently have $900 in the bank and save $250 per month.

   When will both families have the same amount of savings? Show how you arrived at your solution.

9. A rectangle has a perimeter of 44 inches and an area of 72 square inches. What are the lengths of the sides of the rectangle?

   A. 2 inches and 36 inches

   B. 4 inches and 18 inches

   C. 8 inches and 9 inches

   D. 11 inches and 11 inches

10. The equation

    $$d = 24w + 180$$

    represents d, the demand for a CD at Jim's Music Store after w, weeks.

    The equation

    $$s = 800 - 100w$$

    represents s, the supply for the same CD after w weeks.

    After how many weeks will the demand for the CD equal the supply?

    A. 4   B. 5   C. 8   D. 13

11. The perimeter of a child's rectangular play yard is 64 yards. The length and width of the yard are consecutive odd integers. If the length (x) is the longer of the two dimensions, what is the width of the play yard?

    A. 15 yards   B. 17 yards

    C. 31 yards   D. 33 yards

12. Julia and Marcia bought identically priced cans of chili and identically priced jars of salsa to make a dip.

    - Julia bought 3 cans of chili and 2 jars of salsa for $10.07.
    - Marcia bought 2 cans of chili and 4 jars of salsa for $12.98.

    Which of the following systems of equations could be used to find x, the cost of one can of chili, and y, the cost of one jar of salsa?

    A. $x + y = 10.07$
       $x + y = 12.98$

    B. $10.07x + 12.98y = 11$
       $x + y = 11$

    C. $2x + 4y = 10.07$
       $2x + 3y = 12.98$

    D. $3x + 2y = 10.07$
       $2x + 4y = 12.98$

13. The value of all of the quarters and dimes in a parking meter is $18. There are twice as many quarters as dimes. What is the total number of dimes in the parking meter?

14. A total of 120 adults and students attended a school volleyball game. Each adult paid $2.50, and each student paid $1.00. The total paid by the adults and students attending the game was $189.

    Which of the following systems of equations can be used to find a, the number of adults attending, and s, the number of students attending the game?

    A. $\begin{cases} a + s = 120 \\ 2.5a + 2.5s = 189 \end{cases}$

    B. $\begin{cases} 2.5a + s = 120 \\ a + s = 189 \end{cases}$

    C. $\begin{cases} 2.5a + s = 120 \\ 3.5a + 3.5s = 189 \end{cases}$

    D. $\begin{cases} a + s = 120 \\ 2.5a + s = 189 \end{cases}$

15. For an original graphic design, Lee charges a fixed fee of $50 plus $25 for each hour that he works. His main competitor charges a fixed fee of $40 plus $30 for each hour that he works on a design. Lee's competitor advertises that his rates are cheaper. Is Lee's competitor correct? Explain your reasoning.

16. The perimeter of a rectangle is 48 inches. The length of the rectangle is 3 times the width of the rectangle. What is the area of the rectangle?

    A. 24 square inches   B. 54 square inches

    C. 108 square inches   D. 432 square inches

17. Haynes High School chartered buses for 60 students to go on a field trip. Valley High School chartered buses for 80 students.

    - The total cost of the buses was the same for the two schools.
    - Students from Valley High School paid $5 less than students from Haynes High School.

    What was the cost per student for Haynes High School?

    A. $5   B. $15   C. $20   D. $40

18. Kara and Sonny went to see a movie at the local theater.

    - Kara paid $13.00 for 1 large box of popcorn and 2 large soft drinks.
    - Sonny paid $8.50 for 1 large box of popcorn and 1 large soft drink.

    In the system of equations below, p represents the cost of 1 large box of popcorn and s represents the cost of 1 large soft drink.

    $$p + 2s = 13.00$$
    $$p + s = 8.50$$

    What is the value of p, the cost of 1 large box of popcorn?

    A. $4.00   B. $4.25   C. $4.30   D. $4.50

19. Last year, Kristen read a total of 30 fiction and non-fiction books. The number of non-fiction books was 5 less than 4 times the number of fiction books.

    What is the total number of *fiction* books that Kristen read last year?

    A. 5   B. 7   C. 23   D. 25

20. Andre has a dog pen in the shape of a rectangle.

    - The perimeter of his dog pen is 60 feet.
    - The length of his dog pen is twice its width.

    What is the area of Andre's dog pen?

    A. 200 square feet   B. 225 square feet

    C. 800 square feet   D. 900 square feet

21. Julia spent 3 hours hiking 6 miles up a hill. She spent 2 hours hiking 8 miles down the hill on a different path.

    For Julia's completed hike up and down the hill, what was her average speed, in miles per hour?

    A. 2.0   B. 2.5   C. 2.8   D. 3.0

22. The length of a rectangle is 1 inch more than 2 times its width. The area of the rectangle is 36 square inches.

    What is the *length* of the rectangle?

    A. 4 inches   B. 6 inches

    C. 9 inches   D. 18 inches

23. Niraj went on the following airplane flight:

    - The flight was 5 hours long.
    - The total distance of the flight was 640 miles.
    - For the *first* part of the flight, the average speed of the airplane was 140 miles per hour.
    - For the *second* part of the flight, the average speed of the airplane was 120 miles per hour.

    Which of the following systems of equations can be used to find x, the number of hours in the first part of the flight, and y, the number of hours in the second part of the flight?

    A. $x + y = 5$
          $120x + 140y = 640$

    B. $x + y = 640$
          $120x + 140y = 5$

    C. $x + y = 5$
          $140x + 120y = 640$

    D. $x + y = 640$
          $140x + 120y = 5$

24. The sum of Claudia's age and Pedro's age is 14 years. Claudia is older than Pedro, and the difference of their ages is 6 years.

    The system of equations below represents this situation, where c represents Claudia's age and p represents Pedro's age.

    $$c + p = 14$$
    $$c - p = 6$$

    What is **Claudia's** age, in years?

25. The width of a rectangular room is 6 feet less than its length. The area of the room is 135 square feet.

    What is the *length*, in feet, of the room?

    A. 9   B. 15   C. 21   D. 27

26. Ellie ordered boxes of short envelopes and boxes of long envelopes for her company.

    - Each box of short envelopes contains exactly 80 envelopes.
    - Each box of long envelopes contains exactly 50 envelopes.
    - Ellie ordered 16 boxes of envelopes.
    - The 16 boxes contained 1070 envelopes in all.

    What is the total number of boxes of *long* envelopes that Ellie ordered?

    A. 6   B. 7   C. 8   D. 9

27. Serena bought some small and large picture frames.

    - She paid $3 for each small picture frame.
    - She paid $5 for each large picture frame.
    - She bought a total of 10 picture frames.
    - She paid a total of $36 for all the picture frames. There is no sales tax.

    What is the number of *large* picture frames that Serena bought?

28. Luke has 15 coins. He has only nickels and dimes. If the total value of the coins is $1.20, how many *nickels* does he have?

    A. 5   B. 6   C. 8   D. 9

29. The perimeter of a rectangle is 22 meters. The area of the rectangle is 24 square meters.

    What are the length and the width, in meters, of the rectangle?

    A. length = 6; width = 4

    B. length = 8; width = 3

    C. length = 9; width = 2

    D. length = 12; width = 10

30. Anna and Ravi became members of different health clubs on the same day.

    - Anna's club charges members $25 per month and does not require a registration fee.
    - Ravi's club charges members $15 per month plus a one-time registration fee of $50.

    After how many months of membership will Anna and Ravi have paid the same total amount of money?

    A. 2   B. 4   C. 5   D. 10

31. Sarah walked at a speed of 3 miles per hour. Beneta rode her bicycle at a speed of 9 miles per hour. They both traveled the same distance, but it took Sarah 4 more hours than it took Beneta.

    How many hours did it take Beneta?

    A. 2   B. 3   C. 4   D. 6

32. Eleana and her grandfather both had birthdays last week.

    - The sum of their ages is 100 years.
    - Her grandfather's age is 4 times Eleana's age.

    How old is Eleana?

    A. 16 years   B. 20 years

    C. 22 years   D. 25 years

33. Marla uses two copiers to make copies of a one-page newsletter.

    - Copier R makes 60 copies per minute.
    - Copier T makes 40 copies per minute.

    Marla will use both copiers to make a total of 1200 copies of the newsletter. Both copiers will start and end at the same time.

    How many minutes will it take to make the 1200 copies?

    A. 12 minutes   B. 20 minutes

    C. 24 minutes   D. 30 minutes

Systems of Equations Word Problems   03/16/2013

1.

2.
Answer: C

3.

4.
Answer: B

5.
Answer: A

6.
Answer: D

7.
Answer: C

8.

9.
Answer: B

10.
Answer: B

11.
Answer: A

12.
Answer: A

13.
Answer: 30

14.
Answer: D

15.

16.
Answer: C

17.
Answer: C

18.
Answer: A

19.
Answer: B

20.
Answer: A

21.
Answer: C

22.
Answer: C

23.
Answer: C

24.
Answer: 10

25.
Answer: B

26.
Answer: B

27.
Answer: 3

28.
Answer: B

29.
Answer: B

30.
Answer: C

31.
Answer: A

32.
Answer: B

33.
Answer: A