13. Packet: Solving Systems of Equations

Multiple Choice
Identify the choice that best completes the statement or answers the question.

_____ 1. Louise printed 40 standard photos and 12 wallet photos for a total of $6.96.
Marcia printed 25 standard photos and 30 wallet photos for a total of $6.15.

Which system of equations can be used to find s, the cost in dollars of each standard photo, and w, the cost in dollars of each wallet photo?

a. $40s + 12w = 6.96$
$25s + 30w = 6.15$

b. $40s + 25w = 6.96$
$25w + 30w = 6.15$

c. $40s + 25w = 6.96$
$25w + 30w = 6.15$

d. $40s + 25s = 6.96$
$12w + 30w = 6.15$

_____ 2. What is the solution of the system of equations below?
$3x + 2y = 5$

$2x + y = 2$

a. $x = 2; \quad y = -2$

b. $x = -2; \quad y = 6$

c. $x = 1; \quad y = 1$

d. $x = -1; \quad y = 4$

_____ 3. In the inequality below, h represents the maximum number of hours a family can rent a moving truck while staying within their budget of $300.

$20h + 100 \leq 300$

What is h, the maximum number of hours the family can rent the truck while staying within their budget?

a. 5
b. 10

c. 15
d. 20

_____ 4. In the equation below, t represents the time, in hours, it will take a delivery driver to complete a 350-mile trip.

$$150 + 50t = 350$$

What is t, the time in hours it will take the delivery driver to complete the trip?

a. 3   c. 7
b. 4   d. 10

_____ 5. Francine sold 3 coffee mugs and 5 vases for a total of $90 at a fair on Saturday. The next day she sold 2 coffee mugs and 4 vases for $70.Which system of equations can be used to find x, the price in dollars of each coffee mug, and y, the price in dollars of each vase?

a. $3x + 5x = 90$ c. $2x + 4y = 90$
b. $3x + 5y = 90$ d. $2y + 4y = 90$

_____ 6. Chaz sold tickets to a concert. He sold tickets in advance and tickets at the door.

    Tickets sold in advance cost $8 each.
    Tickets sold at the door cost $12 each.

Chaz sold 200 tickets in all. The total cost of all the tickets Chaz sold was $2116.Let x equal the number of tickets Chaz sold in advance, and let y equal the number of tickets he sold at the door.Which of the following systems of equations represents this information?

a. $8x + 8y = 200$ c. $x + y = 200$
   $12x + 12y = 2116$ $8x + 12y = 2116$
b. $8x + 8y = 2116$ d. $x + y = 2116$
   $12x + 12y = 200$ $8x + 12y = 200$

Short Answer

7. What is the value of x in the solution of the system of equations below?

$$8x - y = 20$$
$$y = 3x$$

Answer: _____

8. What is the value of x that makes the equation below true?

$$x - 20 = -3(x - 4)$$

9. What value of p makes the system of equations below true?

$$4p + 3m = 20$$
$$4p + m = 12$$

10. 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?

Open Response

11. Mr. Gomez's mathematics test consists of multiple-choice and short-answer questions only.

    Each multiple-choice question is worth 3 points.
    Each short-answer question is worth 5 points.

    Let x and y be defined as follows:

    x = the number of multiple-choice questions
    y = the number of short-answer questions

    The test has a total of 30 questions. Write an equation in terms of x and y that represents this fact.

    a) Write an expression in terms of x that represents the total point value of all the multiple-choice questions.

    b) Write an expression in terms of y that represents the total point value of all the short-answer questions.

    c) The test has a total of 100 points. Write an equation in terms of x and y that represents this fact.

    d) Use your equations from parts (a) and (d) to determine how many multiple-choice questions and how many short-answer questions are on the test. Show your work.

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Answer Section

MULTIPLE CHOICE

    1. ANS: A   PTS: 1   NOT: March Retest
    2. ANS: D   PTS: 1
    3. ANS: B   PTS: 1
    4. ANS: B   PTS: 1
    5. ANS: B   PTS: 1
    6. ANS: C   PTS: 1

SHORT ANSWER

    7. ANS:
        Answer: $x = 4$

        PTS: 1   NOT: No calculator
    8. ANS:
        $x = 8$

        PTS: 1
    9. ANS:
        $p = 2$

        PTS: 1
    10. ANS:
        3

        PTS: 1

ESSAY

11. ANS:
     See student response:

A) $x + y = 30$

B) $3x$ = total point value of multiple choice questions

C) $5y$ = total point value of short answer questions

D) $3x + 5y = 100$

e) there are 25 multiple choice and 5 short answe
because
$x + y = 30$ and $3x + 5y = 100$
$25 + 5 = 30$ $3(25) + 5(5) = 100$
                   $75 + 25 = 100$
                   $100 = 100$

PTS: 1