Name _____ Date _____ Class _____

Additional Practice

1. The equations below represent the costs to print brochures at three different printers.

    a. For which equation does the point $(20, 60)$ lie on the graph? Explain.

        i. $C = 15 + 2.50N$ **ii.** $C = 50 + 1.75N$ **iii.** $C = 30 + 1.50N$

    b. For each equation, give the coordinates of a point on the graph of the equation.

2. The equations below represent the distances in meters traveled after t seconds by three cyclists.

    a. For which equation does the point $(10, 74)$ lie on the graph? Explain.

        i. $D = 2.4t + 32$ **ii.** $D = 4.2t + 32$ **iii.** $D = 6t + 32$

    b. For each equation, give the coordinates of a point on the graph of the equation.

3. Do parts (a) and (b) for each pair of equations below.

    i. $y = -\frac{12}{5}x - 6$ **ii.** $y = x - 3$

           $y = 4x + 14$ $y = -1.5x + 12$

    a. Graph the two equations on the same axes. Use window settings that allow you to see the points where the graphs intersect. What ranges of x- and y-values did you use for your window?

    b. Find the point of intersection of the graphs.

        iii. $y = x + 9$ **iv.** $y = 2x - 6$

            $y = 7 - 3x$ $y = -2$

    c. Test each point of intersection you found by substituting its coordinates into the equations. Did the points fit the equation exactly? Explain why or why not.

4. a. Find r if $2r + 10 = 22$.   **b.** Find x if $4.5x = 45$.

    c. Find z if $3z - 19 = 173$.   **d.** Find w if $67.1 = 29.7 - 0.2w$.

Additional Practice *(continued)*

5. Betty is thinking of two consecutive integers whose sum is 41. Let x represent the smaller unknown integer.

   a. How could you represent the larger unknown integer in terms of x?

   b. Write an equation showing that the sum of the two unknown integers is 41.

   c. Solve your equation. What integers is Betty thinking of?

6. Find the number described in each problem by writing and solving an equation.

   a. If Sarah subtracts five times her number from 24, she gets 4. What is Sarah's number?

   b. Twice Bill's number added to 17 is 7. What is Bill's number?

   c. The sum of 4 times a number and 14 is 16. What is the number?

   d. If Susan subtracts 11 from one fourth of her number she gets 11. What is Susan's number?

7. The school drama club is performing a play at the community theater. Props cost $250, and the theater is charging the drama club $1.25 for each ticket sold. So, the total cost C for the drama club to put on the play is $C = 1.25N + 250$, where N is the number of tickets sold. Customers pay $4 for each ticket, so the total amount collected from ticket sales is $T = 4N$.

   a. What is the cost if 213 tickets are sold?

   b. How much are the total ticket sales if 213 tickets are sold?

   c. What is the drama club's profit or loss if 213 tickets are sold?

   d. If the total ticket sales are $780, how many people attended the play?

   e. What is the cost of putting on the play for the number of people you found in part (d)?

Additional Practice *(continued)*

f. How many tickets does the drama club need to sell to break even?

g. The drama club would like to earn a profit of $500 from the play. How many tickets need to be sold for the club to meet this goal?

8. In each pair of equations, solve the first equation and graph the second equation:

a. $0 = 3x + 6$ $y = 3x + 6$

b. $0 = x - 2$ $y = x - 2$

c. $0 = 3x + 10$ $y = 3x + 10$

d. In each pair, how is the solution to the first equation related to the graph?

Additional Practice *(continued)*

9. Marsha said there are two ways to solve the equation $3x + 15 = 24$.

$3x + 15 = 24$	Subtract 15 from each side.	$3x + 15 = 24$	Divide each side by 3.
$3x = 9$	Divide each side by 3.	$x + 5 = 8$	Subtract 5 from each side.
$x = 3$		$x = 3$	

a. Are both strategies correct? Explain.

b. Which strategy do you think is easier? Explain.

c. How do you know when you can divide first?

d. Solve this equation in two ways: $5x + 20 = 5$

10. Find x if

    a. $x + 7 = 20$ **b.** $3x + 7 = 20$ **c.** $-2x + 7 = 20$

    d. How are the solutions similar? How are they different?

Additional Practice *(continued)*

11. If $y = \frac{2}{3}x + 4$, find y if

   a. $x = 0$ **b.** $x = 3$ **c.** $x = 9$

   d. $x = -9$ **e.** $x = 10$ **f.** $x = \frac{1}{2}$

12. Solve the following equations for the value of x:

   a. $3x + 5 = 4x - 10$

   b. $4x + 10 = 6x - 8$

   c. $3x + 10 = 5x$

   d. $3x - 11 = 8x - 21$

   e. $3(x + 8) = 12$