Review & Preview

5-5. A tile pattern has 5 tiles in Figure 0 and adds 7 tiles in each new figure. Write the equation of the line that represents the growth of this pattern.

5-6. Solve each equation below for the indicated variable, if possible. Show all steps.

a. Solve for x: $2x+22=12$

b. Solve for y: $2x-y=3$

c. Solve for x: $2x+15=2x-15$

d. Solve for y: $6x+2y=10$

5-7. Solve each of the following equations for x. Then check each solution.

a. $\frac{x}{16}=\frac{7}{10}$ b. $\frac{6}{15}=\frac{3}{x}$ c. $\frac{2x}{5}=\frac{12}{8}$ d. $-8=\frac{2}{x}$

5-8. Graph the lines $y=-4x+3$ and $y=x-7$ on the same set of axes. Then find their point of intersection.

5-9. Draw Figures 1, 2, and 3 for a tile pattern that could be described by $y=-3x+10$.

Review & Preview

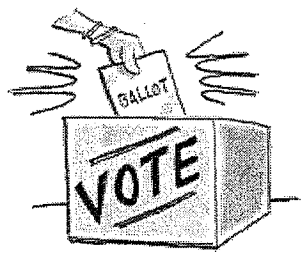
5-18. Solve each equation below.

a. $\frac{x}{2}+\frac{x}{6}=7$

b. $\frac{x}{9}+\frac{2x}{2}=\frac{1}{3}$

5-19. Fisher thinks that any two lines must have a point of intersection. Is he correct? If so, explain how you know. If not, produce a **counterexample** and explain your reasoning. (In this case, a counterexample would be an example of two lines that do not have a point of intersection.)

5-20. In the last election, candidate B received twice as many votes as candidate A. Candidate C received 5,000 fewer votes than candidate A. If a total of 109,000 votes were cast, how many votes did candidate B receive?



5-21. Jamila wants to play a game called "Guess My Line." She gives you the following hint: "Two points on my line are (1, 1) and (2, 4)."

a. What is the growth rate of her line? A graph of the line may help.

b. What is the y-intercept of her line?

c. What is the equation of her line?

5-22. Solve each of the following equations. Be sure to show your work carefully and check your answers.

a. $2(3x-4)=22$

b. $6(2x-5)=-(x+4)$

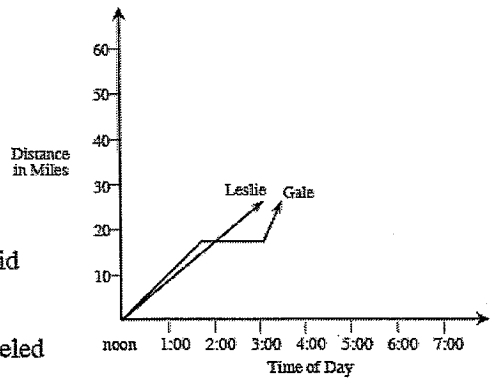
c. $2-(y+2)=3y$

d. $3+4(x+1)=159$

Review & Preview

5-27. To ride to school, Elaine takes 7 minutes to ride 18 blocks. What is her unit rate (blocks per minute)? Assuming she rides at a constant speed, how long should it take her to go 50 blocks? Justify your answer.

5-28. Gale and Leslie are riding in a friendly 60-mile bike race that started at noon. The graph at right represents their progress so far.



a. What does the intersection of the two lines represent?

b. At approximately what time did Leslie pass Gale?

c. About how far had Leslie traveled when she passed Gale?

d. What do you think happened to Gale between 1:30 and 3:00?

e. If Leslie continues at a steady pace, when will she complete the race?

5-29. Write an equation (rule) for each of the $x \rightarrow y$ tables below. Then, on one set of axes, use each rule to graph.

a.

x	y
8	23
2	5
–3	–10
9	26
x	

b.

x	y
6	32
–2	–8
0	2
10	52
x	

5-30. Translate each part below from symbols into words or from words into symbols.

a. $-y+8$ b. $2x-48$ c. $(x+3)^2$

d. The opposite of six times the square of a number.

e. A number multiplied by itself, then added to five.

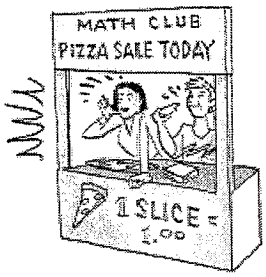
5-31. Solve each of the following equations for the indicated variable. Show all of your steps.

a. $y=2x-5$ for x b. $p=-3w+9$ for w

c. $2m-6=4n+4$ for m d. $3x-y=-2y$ for y

Review & Preview

5-36. It is the end of the semester, and the clubs at school are recording their profits. The Science Club started out with \$20 and has increased its balance by an average of \$10 per week. The Math Club has saved \$5 per week after starting out with \$50 at the beginning of the semester.

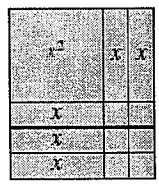


a. Create an equation for each club. Let x represent the number of weeks and y represent the balance of the club's account.

b. Graph both lines on one set of axes. When do the clubs have the same balance?

c. What is the balance at that point?

5-37. Examine the rectangle formed with algebra tiles at right.

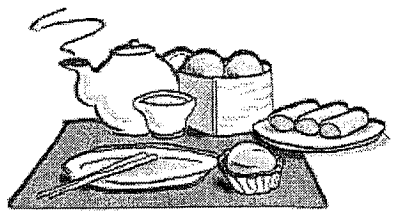


a. Find the area of the entire rectangle. That is, what is the sum of the areas of the algebra tiles?

b. Find the perimeter of the entire rectangle. Show all work.

5-38. On graph paper, plot the points $(-3, 7)$ and $(2, -3)$ and draw a line through them. Then name the x- and y-intercepts of the line.

5-39. A local restaurant offers a Dim Sum lunch special that includes two dumplings, three egg rolls, a sweet bun, and a drink. Susan and her friends ordered four Dim Sum lunch specials.



How many of each item should they receive?

5-40. Solve for x.

a. $\frac{x}{2}+\frac{x}{5}=1$

b. $\frac{x}{3}+\frac{x-1}{4}=2+x$

Review & Preview

5-47. Ariyonne claims that (3, 6) is the point of intersection of the lines $y = 4x - 2$ and $y = \frac{1}{2}x + 5$. Is she correct? How do you know?

5-48. Graph the lines $y = 2x - 3$ and $y = -x + 3$.

a. Where do they intersect? Label the point on the graph.

b. Find the point of intersection using the Equal Values Method. That is, start by combining both equations into one equation that you can solve for x.

c. Which method is easier for you, graphing or using algebra to solve?

5-49. Solve for the variable.

a. $\frac{7y}{8} - \frac{3y}{5} = \frac{11}{2}$

b. $\frac{a+4}{3} - \frac{a}{7} = \frac{a+7}{5}$

5-50. Graph the lines $y = 2x - 3$ and $y = 2x + 1$.

a. Where do they intersect?

b. Solve this system using the Equal Values Method.

c. Explain how your graph and algebraic solution relate to each other.

5-51. Janelle came to bat 464 times in 131 games. At this rate, how many times should she expect to have at bat in a full season of 162 games?

Review & Preview

5-57. Determine the coordinates of each point of intersection without graphing.

a. $y=-x+8$
$y=x-2$

b. $y=-3x$
$y=-4x+2$

5-58. Change each equation below into $y=mx+b$ form.

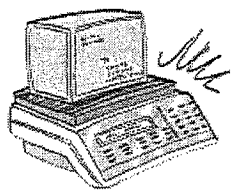
a. $y-4x=-3$

b. $3y-3x=9$

c. $3x+2y=12$

d. $2(x-3)+3y=0$

5-59. Mailboxes Plus sends packages overnight for \$5 plus \$0.25 per ounce. United Packages charges \$2 plus \$0.35 per ounce. Mr. Molinari noticed that his package would cost the same to mail using either service. How much does his package weigh?



5-60. Solve for x.

a. $\frac{2}{3}=\frac{x}{4}$

b. $\frac{2}{3}=\frac{x}{4}+\frac{x}{3}$

c. How are these problems the same and how are they different?

5-61. This problem is a checkpoint for solving equations. It will be referred to as Checkpoint 5.

Solve each equation.

a. $3x+7=-x-1$

b. $1-2x+5=4x-3$

c. $-2x-6=2-4x-(x-1)$

d. $3x-4+1=-2x-5+5x$

Check your answers by referring to the Checkpoint 5 materials located at the back of your book.

If you needed help solving these problems correctly, then you need more practice. Review the Checkpoint 5 materials and try the practice problems. Also, consider getting help outside of class time. From this point on, you will be expected to do problems like these quickly and easily.