MATHEMATICAL PRACTICES

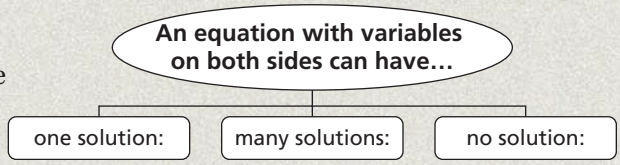
THINK AND DISCUSS

1. Tell which of the following is an identity. Explain your answer.

a. $4(a+3)-6=3(a+3)-6$ **b.** $8.3x-9+0.7x=2+9x-11$

Know it! Note

2. GET ORGANIZED Copy and complete the graphic organizer. In each box, write an example of an equation that has the indicated number of solutions.



1-5 Exercises

Learn It Online
Homework Help Online
Parent Resources Online

GUIDED PRACTICE

1. Vocabulary How can you recognize an identity?

Solve each equation. Check your answer.

SEE EXAMPLE 1

2. $2c-5=c+4$ **3.** $8r+4=10+2r$

4. $2x-1=x+11$ **5.** $28-0.3y=0.7y-12$

SEE EXAMPLE 2

6. $-2(x+3)=4x-3$ **7.** $3c-4c+1=5c+2+3$

8. $5+3(q-4)=2(q+1)$ **9.** $5-(t+3)=-1+2(t-3)$

SEE EXAMPLE 3

10. $7x-4=-2x+1+9x-5$ **11.** $8x+6-9x=2-x-15$

12. $6y=8-9+6y$ **13.** $6-2x-1=4x+8-6x-3$

SEE EXAMPLE 4

14. Consumer Economics A house-painting company charges \$376 plus \$12 per hour. Another painting company charges \$280 plus \$15 per hour.

a. How long is a job for which both companies will charge the same amount?

b. What will that cost be?

PRACTICE AND PROBLEM SOLVING

Solve each equation. Check your answer.

15. $7a-17=4a+1$ **16.** $2b-5=8b+1$ **17.** $4x-2=3x+4$

18. $2x-5=4x-1$ **19.** $8x-2=3x+12.25$ **20.** $5x+2=3x$

21. $3c-5=2c+5$ **22.** $-17-2x=6-x$ **23.** $3(t-1)=9+t$

24. $5-x-2=3+4x+5$ **25.** $2(x+4)=3(x-2)$ **26.** $3m-10=2(4m-5)$

27. $5-(n-4)=3(n+2)$ **28.** $6(x+7)-20=6x$ **29.** $8(x+1)=4x-8$

30. $x-4-3x=-2x-3-1$ **31.** $-2(x+2)=-2x+1$ **32.** $2(x+4)-5=2x+3$

Independent Practice

For Exercises	See Example
15–22	1
23–29	2
30–32	3
33	4

Extra Practice

See Extra Practice for more Skills Practice and Applications Practice exercises.

33. Sports Justin and Tyson are beginning an exercise program to train for football season. Justin weighs 150 lb and hopes to gain 2 lb per week. Tyson weighs 195 lb and hopes to lose 1 lb per week.

a. If the plan works, in how many weeks will the boys weigh the same amount?

b. What will that weight be?

Write an equation to represent each relationship. Then solve the equation.

34. Three times the sum of a number and 4 is the same as 18 more than the number.

35. A number decreased by 30 is the same as 14 minus 3 times the number.

36. Two less than 2 times a number is the same as the number plus 64.

Solve each equation. Check your answer.

37. $2x - 2 = 4x + 6$

38. $3x + 5 = 2x + 2$

39. $4x + 3 = 5x - 4$

40. $-\frac{2}{5}p + 2 = \frac{1}{5}p + 11$

41. $5x + 24 = 2x + 15$

42. $5x - 10 = 14 - 3x$

43. $12 - 6x = 10 - 5x$

44. $5x - 7 = -6x - 29$

45. $1.8x + 2.8 = 2.5x + 2.1$

46. $2.6x + 18 = 2.4x + 22$

47. $1 - 3x = 2x + 8$

48. $\frac{1}{2}(8 - 6h) = h$

49. $3(x + 1) = 2x + 7$

50. $9x - 8 + 4x = 7x + 16$

51. $3(2x - 1) + 5 = 6(x + 1)$

52. Travel Rapid Rental Car company charges a $40 rental fee, $15 for gas, and $0.25 per mile driven. For the same car, Capital Cars charges $45 for rental and gas and $0.35 per mile.

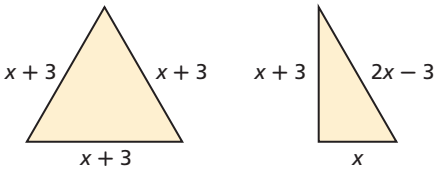
a. Find the number of miles for which the companies' charges will be the same. Then find that charge. Show that your answers are reasonable.

b. The Barre family estimates that they will drive about 95 miles during their vacation to Hershey, Pennsylvania. Which company should they rent their car from? Explain.

c. What if...? The Barres have extended their vacation and now estimate that they will drive about 120 miles. Should they still rent from the same company as in part **b**? Why or why not?

d. Give a general rule for deciding which company to rent from.

53. Geometry The triangles shown have the same perimeter. What is the value of x?



MULTI-STEP TEST PREP

54. **a.** A fire currently covers 420 acres and continues to spread at a rate of 60 acres per day. How many total acres will be covered in the next 2 days? Show that your answer is reasonable.

b. Write an expression for the total area covered by the fire in d days.

c. The firefighters estimate that they can put out the fire at a rate of 80 acres per day. Write an expression for the total area that the firefighters can put out in d days.

d. Set the expressions in parts **b** and **c** equal. Solve for d. What does d represent?