

# 3.4 EXERCISES

## HOMEWORK KEY

 = **WORKED-OUT SOLUTIONS**  
on p. WS1 for Exs. 13 and 51

 = **TAKS PRACTICE AND REASONING**  
Exs. 15, 16, 29, 53, 56, and 57

 = **MULTIPLE REPRESENTATIONS**  
Ex. 52

### SKILL PRACTICE

1. **VOCABULARY** Copy and complete: An equation that is true for all values of the variable is called a(n) ?.

2. **WRITING** Explain why the equation  $4x + 3 = 4x + 1$  has no solution.

#### **SOLVING EQUATIONS** Solve the equation. Check your solution.

3.  $8t + 5 = 6t + 1$

4.  $k + 1 = 3k - 1$

5.  $8c + 5 = 4c - 11$

6.  $8 + 4m = 9m - 7$

7.  $10b + 18 = 8b + 4$

8.  $19 - 13p = -17p - 5$

9.  $9a = 6(a + 4)$


10.  $5h - 7 = 2(h + 1)$

11.  $3(d + 12) = 8 - 4d$

12.  $7(r + 7) = 5r + 59$

13.  $40 + 14j = 2(-4j - 13)$

14.  $5(n + 2) = \frac{3}{5}(5 + 10n)$

15.  **TAKS REASONING** What is the solution of the equation  $8x + 2x = 15x - 10$ ?

(A) -2

(B) 0.4

(C) 2

(D) 5

16.  **TAKS REASONING** What is the solution of the equation  $4y + y + 1 = 7(y - 1)$ ?

(A) -4

(B) -3

(C) 3

(D) 4

17. **WRITING** Describe the steps you would use to solve the equation  $3(2z - 5) = 2z + 13$ .

#### **SOLVING EQUATIONS** Solve the equation, if possible.

18.  $w + 3 = w + 6$

19.  $16d = 22 + 5d$

20.  $8z = 4(2z + 1)$

21.  $12 + 5v = 2v - 9$

22.  $22x + 70 = 17x - 95$

23.  $2 - 15n = 5(-3n + 2)$

24.  $12y + 6 = 6(2y + 1)$

25.  $5(1 + 4m) = 2(3 + 10m)$

26.  $2(3g + 2) = \frac{1}{2}(12g + 8)$

#### **ERROR ANALYSIS** Describe and correct the error in solving the equation.

27.

$$3(x + 5) = 3x + 15$$

$$3x + 5 = 3x + 15$$

$$5 = 15$$

The equation has no solution.



28.

$$6(2y + 6) = 4(9 + 3y)$$


$$12y + 36 = 36 + 12y$$

$$12y = 12y$$

$$0 = 0$$

The solution is  $y = 0$ .



29.  **TAKS REASONING** Give an example of an equation that has no solution. Explain why your equation does not have a solution.

#### EXAMPLES 1 and 2

on p. 154  
for Exs. 3–17

#### EXAMPLE 4

on p. 156  
for Exs. 18–28