

3.2 EXERCISES

HOMWORK KEY

- ◆ = **MULTIPLE CHOICE PRACTICE**
Exs. 21, 22, 45, and 51–53
- = **HINTS AND HOMEWORK HELP**
for Exs. 13, 19, and 43 at classzone.com

SKILLS • PROBLEM SOLVING • REASONING

1. **VOCABULARY** Copy and complete: To solve the equation $2x + 3x = 20$, you would begin by combining $2x$ and $3x$ because they are ? .

2. **WRITING** Describe the steps you would use to solve the equation $4x + 7 = 15$.

EXAMPLE 1

on p. 132
for Exs. 3–14,
21, 23

SOLVING TWO-STEP EQUATIONS Solve the equation. Check your solution.

- | | | |
|----------------------------|-----------------------------|-----------------------------|
| 3. $3x + 7 = 19$ | 4. $5h + 4 = 19$ | 5. $7d - 1 = 13$ |
| 6. $2g - 13 = 3$ | 7. $10 = 7 - m$ | 8. $11 = 12 - q$ |
| 9. $\frac{a}{3} + 4 = 6$ | 10. $17 = \frac{w}{5} + 13$ | 11. $\frac{b}{2} - 9 = 11$ |
| 12. $-6 = \frac{z}{4} - 3$ | 13. $7 = \frac{5}{6}c - 8$ | 14. $10 = \frac{2}{7}n + 4$ |

EXAMPLE 2

on p. 133
for Exs. 15–20,
22, 24

COMBINING LIKE TERMS Solve the equation. Check your solution.

- | | | |
|--------------------|-----------------------|---------------------|
| 15. $8y + 3y = 44$ | 16. $2p + 7p = 54$ | 17. $11x - 9x = 18$ |
| 18. $36 = 9x - 3x$ | 19. $-32 = -5k + 13k$ | 20. $6 = -7f + 4f$ |

21. ◆ **MULTIPLE CHOICE** What is the first step you can take to solve the equation $6 + \frac{x}{3} = -2$?

- | | |
|--------------------------------|--------------------------------|
| (A) Subtract 2 from each side. | (B) Add 6 to each side. |
| (C) Divide each side by 3. | (D) Subtract 6 from each side. |

22. ◆ **MULTIPLE CHOICE** What is the value of x if $3x + x = 24$?

- | | | | |
|--------------|--------------|-------------|-------------|
| (A) $x = -7$ | (B) $x = -6$ | (C) $x = 6$ | (D) $x = 7$ |
|--------------|--------------|-------------|-------------|

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

23.

$$7 - 3x = 12$$

$$\frac{4x}{4} = \frac{12}{4}$$

$$x = 3$$



24.

$$-2x + x = 10$$

$$\frac{-2x + x}{-2} = \frac{10}{-2}$$

$$x = -5$$



EXAMPLE 3

on p. 133
for Exs. 25–28

WRITING AND SOLVING TWO-STEP EQUATIONS Write an equation for the verbal sentence. Then find the value of x .

- The value of y is 7 more than 3 times the value of x . Find x when $y = -8$.
- The value of y is 4 more than 2 times the value of x . Find x when $y = -10$.
- The value of y is 9 less than 10 times the value of x . Find x when $y = 11$.
- The value of y is 5 less than 12 times the value of x . Find x when $y = -53$.