

# ORDER OF OPERATIONS

## EXERCISES

Simplify each numerical expression.

- $3 \cdot 6 - 2 \cdot 8$  \_\_\_\_\_
- $(4 + 8) \div 2 - 6$  \_\_\_\_\_
- $2^3 \cdot 1 - 6 + 4$  \_\_\_\_\_
- $\frac{1}{4} \left( \frac{3}{8} + \frac{1}{2} \right)$  \_\_\_\_\_
- $\frac{2}{5}(4 \cdot 5 - 10)$  \_\_\_\_\_
- $8.5 - 4.6 \cdot (12 \div 4)$  \_\_\_\_\_
- $[24 + (8 \div 2)] \div 2^2$  \_\_\_\_\_
- $15 - 8 \cdot 2 + (7 \cdot 4)$  \_\_\_\_\_
- $18 - 3^2 + (4 \cdot 3) \div 2$  \_\_\_\_\_
- $16 + 4 \div 4 - 6 + 4$  \_\_\_\_\_

Evaluate each expression when  $m = 12$ .

- $15 - m$  \_\_\_\_\_
- $m^2 \div (m \div 2)$  \_\_\_\_\_
- $m \div 4 \cdot \left( \frac{m}{2} \right)$  \_\_\_\_\_
- $\frac{1}{3}m \div 2 + (m + 2)$  \_\_\_\_\_
- $m + 0.5m - 10$  \_\_\_\_\_
- $\frac{4m - 6}{m - 5}$  \_\_\_\_\_

17. On Monday, Mona drove 6 hours. On Tuesday, she drove 2 hours more than half the time she drove on Monday. Write and simplify a numerical expression to determine the number of hours she drove on both days.
- \_\_\_\_\_

18. Leon bought tickets for a concert. He bought 6 tickets for \$15.50 and 4 for \$12.50. Write and simplify a numerical expression for the amount of money Leon paid for the tickets.
- \_\_\_\_\_

19. Ned worked  $12\frac{1}{4}$  hours each of the last 4 weeks. Write and simplify an expression for the number of hours that Ned worked during the last 4 weeks.
- \_\_\_\_\_

20. Rita studied for  $a$  hours on Monday,  $b$  hours on Tuesday and  $c$  hours each on Wednesday and Thursday. Write a variable expression for the average number of hours Rita studied Monday through Thursday.
- \_\_\_\_\_

# WRITE VARIABLE EXPRESSIONS

## EXERCISES

Write each phrase as a variable expression.

1. six more than a number \_\_\_\_\_
2. the difference of a number and 16 \_\_\_\_\_
3. the product of negative four and a number \_\_\_\_\_
4. negative eight times a number \_\_\_\_\_
5. the quotient of four and a number \_\_\_\_\_
6. a number less than nine \_\_\_\_\_
7. three fourths increased by a number \_\_\_\_\_
8. four less than twice a number \_\_\_\_\_
9. six sevenths of a number decreased by two \_\_\_\_\_
10. 40 times a number divided by  $-10$  \_\_\_\_\_

Translate each variable expression into a word phrase.

11.  $r + 12$  \_\_\_\_\_
12.  $8 - w$  \_\_\_\_\_
13.  $-4 - g$  \_\_\_\_\_
14.  $\frac{1}{3}r$  \_\_\_\_\_
15.  $\frac{q}{10}$  \_\_\_\_\_
16.  $4y + 2$  \_\_\_\_\_
17.  $0.9c$  \_\_\_\_\_
18.  $4m + \frac{3}{5}$  \_\_\_\_\_
19.  $\frac{-3j}{-10}$  \_\_\_\_\_

# MULTIPLY AND DIVIDE VARIABLE EXPRESSIONS

## EXERCISES

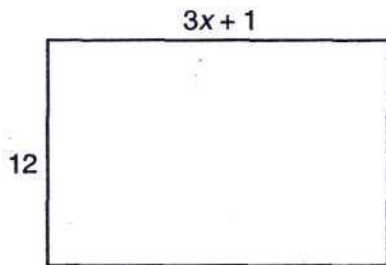
Simplify each variable expression.

- $4(r + 10)$  \_\_\_\_\_
- $-3(2r - 4)$  \_\_\_\_\_
- $\frac{1}{3}(-n - 12)$  \_\_\_\_\_
- $-15(2 - 3x)$  \_\_\_\_\_
- $0.2(0.5f + 0.3)$  \_\_\_\_\_
- $-2(-8d - 6)$  \_\_\_\_\_
- $10(-5t - 10)$  \_\_\_\_\_
- $-\frac{5}{6}(12w + 18)$  \_\_\_\_\_
- $\frac{-5w - 10}{5}$  \_\_\_\_\_
- $\frac{16 - 8a}{-2}$  \_\_\_\_\_
- $\frac{9t - 15}{3}$  \_\_\_\_\_
- $\frac{2.5 - 4d}{0.5}$  \_\_\_\_\_
- $\frac{121r - 66}{-11}$  \_\_\_\_\_
- $\frac{8.1f - 2.7}{-0.9}$  \_\_\_\_\_

Evaluate each expression when  $m = \frac{1}{4}$ ,  $n = -8$  and  $p = -4$ .

- $-2(n + p)$  \_\_\_\_\_
- $4(m - p)$  \_\_\_\_\_
- $\frac{4 + p}{6}$  \_\_\_\_\_
- $\frac{3n + 6}{-3}$  \_\_\_\_\_
- $m(n + p)$  \_\_\_\_\_
- $-1.5(p - 2n)$  \_\_\_\_\_
- $\frac{4m + p}{n}$  \_\_\_\_\_
- $\frac{5p + n}{2}$  \_\_\_\_\_

23. Write and simplify an expression for the area of the figure shown.



# ONE-STEP EQUATIONS

## EXERCISES

Solve each equation. Check the solution.

1.  $5m = 10$  \_\_\_\_\_

2.  $a + 4 = 6$  \_\_\_\_\_

3.  $1.5 + t = 4.5$  \_\_\_\_\_

4.  $\frac{2}{3}g = 4$  \_\_\_\_\_

5.  $z - 6 = 12$  \_\_\_\_\_

6.  $3 - u = 5$  \_\_\_\_\_

7.  $-7w = 3$  \_\_\_\_\_

8.  $\frac{3}{8}x = -6$  \_\_\_\_\_

9.  $q - 3.8 = 6$  \_\_\_\_\_

10.  $-12 = 9j$  \_\_\_\_\_

11.  $-9v = 21$  \_\_\_\_\_

12.  $10 + r = -14$  \_\_\_\_\_

13.  $-2 = \frac{4}{5}z$  \_\_\_\_\_

14.  $-15 = 3h$  \_\_\_\_\_

15.  $-\frac{d}{4} = 2\frac{1}{4}$  \_\_\_\_\_

16.  $-2.4n = 1.2$  \_\_\_\_\_

17.  $-\frac{3}{5}k = |-9|$  \_\_\_\_\_

18.  $8 + 4 + y = 15$  \_\_\_\_\_

19.  $-\frac{n}{4} = -12$  \_\_\_\_\_

20.  $t + 5 = |-3|$  \_\_\_\_\_

21.  $-\frac{5}{6} = \frac{4}{9}s$  \_\_\_\_\_

22.  $q - 6 = |-10|$  \_\_\_\_\_

Translate each word phrase into an equation. Then solve the equation.

23. A number increased by two is four. \_\_\_\_\_

24. Six times a number is  $-18$ . \_\_\_\_\_

25. Four less than a number is negative six. \_\_\_\_\_

26. Seven decreased by a number is 14. \_\_\_\_\_

27. One-fourth of a number is nine. \_\_\_\_\_

28. A number divided by four is negative six. \_\_\_\_\_

# TWO-STEP EQUATIONS

## EXERCISES

Solve each equation. Check the solution.

1.  $4m + 2 = 10$  \_\_\_\_\_

2.  $-5w - 2 = 13$  \_\_\_\_\_

3.  $\frac{p}{2} - 6 = 1$  \_\_\_\_\_

4.  $4s - 15 = 5$  \_\_\_\_\_

5.  $4a - a + 1 = 19$  \_\_\_\_\_

6.  $\frac{2}{3}r + 4 = 12$  \_\_\_\_\_

7.  $3w - 4w + 5 = -4$  \_\_\_\_\_

8.  $-3x - 3x - 4 = 8$  \_\_\_\_\_

9.  $5 = \frac{4}{5}d - 3$  \_\_\_\_\_

10.  $5y - 1.5 = 8.5$  \_\_\_\_\_

11.  $2.6 - 4r = -2.2$  \_\_\_\_\_

12.  $2(h + 4) = 9$  \_\_\_\_\_

13.  $-10h + 2 + 4h - 6 = -16$  \_\_\_\_\_

14.  $5(x - 1) = -15$  \_\_\_\_\_

15.  $5r - 3 = 4r$  \_\_\_\_\_

16.  $\frac{1}{3}(12c - 9) = -7$  \_\_\_\_\_

17.  $2(m + 1) = 4(m + 2)$  \_\_\_\_\_

18.  $4(8 - w) = 29$  \_\_\_\_\_

19.  $y = \frac{x}{2} + 10$ ; solve for  $x$  \_\_\_\_\_

20.  $m = \frac{4}{5}n - 6$ ; solve for  $n$  \_\_\_\_\_

21.  $5(r - 4) = 20s$ ; solve for  $r$  \_\_\_\_\_

22.  $V = lwh$ ; solve for  $w$  \_\_\_\_\_

23.  $y = -\frac{2}{3}x - 2$ ; solve for  $x$  \_\_\_\_\_

Translate each sentence into an equation. Then solve the equation.

24. Four times a number increased by six is negative six. \_\_\_\_\_

25. One fourth of a number decreased by four is negative one. \_\_\_\_\_

26. Eight less than twice a number is two. \_\_\_\_\_