Problem Solving

Variables and Expressions

Write the correct answer.

1. Sharon reads for 45 minutes each day. Write an expression for the number of minutes she reads in d days.

Solution:

45 min in 1 day

45 • d min in 1 • d days

45d min in d days

2. The minimum wage in 2003 was $5.15. This was w more than the minimum   
wage in 1996. Write an expression for   
the minimum wage in 1996.

(Hint: Was the minimum wage more or less in 1996?)

Use the table below to answer questions 3–5. Select the best answer.

3. North Carolina entered the Union x years   
after Pennsylvania. Which expression shows   
the year North Carolina entered the Union?

|  |  |
| --- | --- |
| State | Year Entered  into Union |
| Florida | 1845 |
| Indiana | 1816 |
| Pennsylvania | 1787 |
| Texas | 1845 |
| West Virginia | 1863 |

A 1845 + x

B 1845 − x

C 1787 + x

4. The expression f − 26 represents the year   
Alabama entered the Union, where f is the   
year Florida entered. In which year did   
Alabama enter the Union?

F 1819

G 1826

H 1837

5. The number of states that entered the Union   
in 1889 was half the number of states s that   
entered in 1788. Which expression shows   
the number of states that entered the Union   
in 1889?

A 2s

B s ÷ 2

C s + 2

Answer Key Equations

VARIABLES AND EXPRESSIONS

Practice A

2. y less than 5

3. the quotient of n and 4

4. 10 increased by t

5. the product of 3 and s

6. c + 2 7. 5m

8. 8 9. 4

10. 3 11. 16

12. 8

13. a. j − 4

b. 11 years old; 16 years old;   
54 years old

Problem Solving

2. 5.15 − w

3. C 4. F

5. B

Solving Equations by Adding AND Subtracting

Practice A

2. +9; +9; t = 23 3. +6; +6; p = 4

4. −; −4 5. −6; −6; p = 4

6. −21; −21; x = 4

7. x + 18 = 86; x = 68; The score on the second test was higher than the first, so the score on the first test should be less than 86.

8. x − 4 = 29; 33°F; The actual temperature was lower than expected, so the expected temperature should be greater than 29°F.

Problem Solving

2. 184; 23; 23; 23; 207

3. A 4. F

5. B 6. G

Solving Equations by Multiplying AND Dividing

Practice A

2. −3 × 7; n = −21 3. −3 × 5; t = −15

5. p = 10 6. m = 1

7.  = 63; 252 students

8. 4s = 64; 16 mm

Problem Solving

2. 10; 10; 2.5

3. A 4. H

5. B

Solving Two-Step and   
Multi-Step Equations

Practice A

1. 2; 10; 2 2. 3; 8; 4

3. 21; 9; 3 5. x = 5.4

6. r = −23 7. y = 3

8. b = 24 9. y = −3

10. 7x + 6 + 5x 11. 12; + 6

12. 12x; 84 13. x; 7

14. 55°; 35°

Problem Solving

2. 4p; 4; 4; 2.9 3. C

4. F 5. B

Solving Equations with Variables on Both Sides

Practice A

1. 2a; 3; 10; 5 2. 4r; 9; −4

3. −5b; 30; 5b; 3b; 10

4. 6; c − 13; c = −19

5. 2; x = 3

6. a. 8 + 2h = 2 + 5h

b. 2 hours

c. $12

Problem Solving

2. −1200; 2030; 290d; 7