

Practice

Form G

Solving Equations

Solve each equation.

1. $7.2 + c = 19$ **11.8**

2. $8.5 = 5p$ **1.7**

3. $\frac{d}{4} = -31$ **-124**

4. $s - 31 = 20.5$ **51.6**

Solve each equation. Check your answer.

5. $9(z - 3) = 12z$ **-9**

6. $7y + 5 = 6y + 11$ **6**

7. $5w + 8 - 12w = 16 - 15w$ **1**

8. $3(x + 1) = 2(x + 11)$ **19**

Write an equation to solve each problem.

9. Two brothers are saving money to buy tickets to a concert. Their combined savings is \$55. One brother has \$15 more than the other. How much has each saved? **Variable may vary. Sample: $s + s + 15 = 55$**

10. **Geometry** The sides of a triangle are in the ratio 5 : 12 : 13. What is the length of each side of the triangle if the perimeter of the triangle is 15 inches?
Variable may vary. Sample: $5x + 12x + 13x = 15$

11. What three consecutive numbers have a sum of 126?
Variable may vary. Sample: $n + (n + 1) + (n + 2) = 126$

Determine whether the equation is *always*, *sometimes*, or *never* true.

12. $6(x + 1) = 2(5 + 3x)$ **never**

13. $3(y + 3) + 5y = 4(2y + 1) + 5$ **always**

Solve each formula for the indicated variable.

14. $S = L(1 - r)$, for r **$r = 1 - \frac{S}{L}$**

15. $A = lw + wh + lh$, for w **$w = \frac{A - lh}{l + h}$**

Solve each equation for y .

16. $\frac{4}{9}(y + 3) = g$ **$y = \frac{9}{4}g - 3$**

17. $a(y + c) = b(y - c)$ **$y = \frac{c(a + b)}{b - a}$, $a \neq b$**

18. $\frac{y + 3}{t} = t^2$ **$y = t^3 - 3$, $t \neq 0$**

19. $3y - yz = 2z$ **$y = \frac{2z}{3 - z}$, $z \neq 3$**

Practice (continued)

Form G

Solving Equations

Solve each equation.

20. $0.5(x - 3) + (1.5 - x) = 5x$ **0**

21. $1.2(x + 5) = 1.6(2x + 5)$ **-1**

22. $0.5(c + 2.8) - c = 0.6c + 0.3$ **1**

23. $\frac{u}{5} + \frac{u}{10} - \frac{u}{6} = 1$ **$\frac{15}{2}$**

Solve each formula for the indicated variable.

24. $V = \frac{\pi}{3}r^2h$, for h **$h = \frac{3V}{\pi r^2}$**

25. $D = kA \left[\frac{T_2 - T_1}{L} \right]$ for T_1 **$T_1 = T_2 - \frac{DL}{kA}$**

Write an equation to solve each problem.

26. Two trains left a station at the same time. One traveled north at a certain speed and the other traveled south at twice that speed. After 4 hours, the trains were 600 miles apart. How fast was each train traveling?

Variable may vary. Sample: $4r + 4(2r) = 600$

27. **Geometry** The sides of one cube are twice as long as the sides of a second cube. What is the side length of each cube if the total volume of the cubes is 72 cm^3 ? **Variable may vary. Sample: $s^3 + (2s)^3 = 72$**

28. **Error Analysis** Brenna solved an equation for m . Do you agree with her? Explain your answer.

No; there is an m on both sides of the equation;**the correct result should be $m = \frac{Mv_2}{v_1 - v_2}$**

$$\begin{aligned} m v_1 &= (m + M) v_2 \\ m &= \frac{m v_2 + M v_2}{v_1} \end{aligned}$$

Solve each problem.

29. You and your friend left a bus terminal at the same time and traveled in opposite directions. Your bus was in heavy traffic and had to travel 20 miles per hour slower than your friend's bus. After 3 hours, the buses were 270 miles apart. How fast was each bus going? **Your bus: 35 mi/h; Your friend's bus: 55 mi/h**

30. **Geometry** The length of a rectangle is 5 centimeters greater than its width. The perimeter is 58 centimeters. What are the dimensions of the rectangle? **$w = 12 \text{ cm}, l = 17 \text{ cm}$**

31. What four consecutive odd integers have a sum of 336? **81, 83, 85, 87**