Name:_____Period:_____   Score:

HW 1-6: Multi-Step Equations
(Variables on Both Sides)

_____/_____
_____%

Solve each equation.

1. $7a + 10 = 2a$

6. $3 - \dfrac{2}{9}b = \dfrac{1}{3}b - 7$
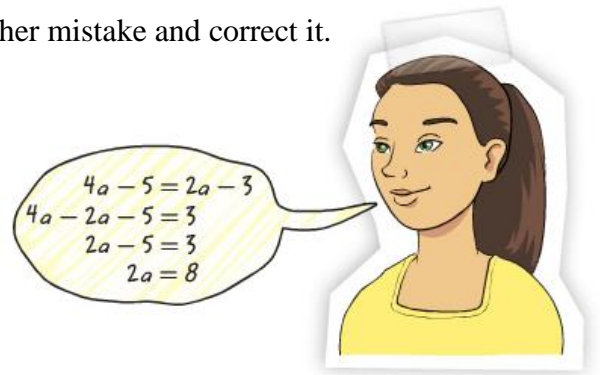
2. $13x = 24 + 4x$

7. $2(3x + 4) = 5x + 7$

3. $11x + 3 = 24 - 4x$

8. $15 - \dfrac{1}{6}n = \dfrac{1}{6}n - 1$

4. $5p + 2 = 4p - 1$

5. $\frac{3}{4}x + 17 = 2\left(\frac{5}{8}x - 34\right)$

9. Alma is solving the equation $4a - 5 = 2a - 3$. Circle her mistake and correct it.

$$4a - 5 = 2a - 3$$
$$4a - 2a - 5 = 3$$
$$2a - 5 = 3$$
$$2a = 8$$

10. What is the solution of the following equation?

$$5x + 7 = -3x - 9$$

A. -2 　　　　　　 C. 2

B. 1 　　　　　　 D. 8

11. Is m = 30 the solution for
$$16 - \frac{3}{5}m = -2$$

12. Is r = 13 the solution for
$$12r - 16 = 10 + 14r$$

13. Is x = -5 the solution for
$$-7 - \frac{2}{3}x = \frac{4}{3}x + 3$$
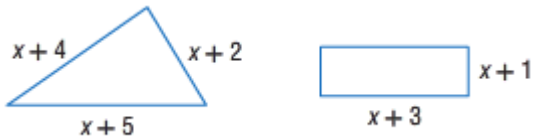
Solve each equation.

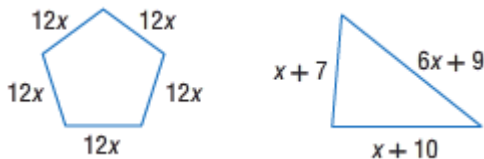**14.** $-6f + 13 = 2f - 11$ 　　　　 **15.** $2.5h - 15 = 4h$ 　　　　 **16.** $2z - 31 = -9z + 24$

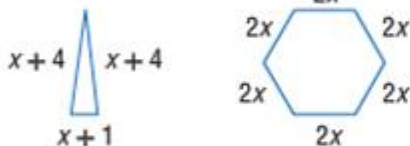**Write an equation to find the value of x so that each pair of polygons has the same perimeter. Then solve.**

17.

Triangle with sides $x+4$, $x+2$, $x+5$; rectangle with sides $x+1$, $x+3$

18.

Pentagon with all sides $12x$; triangle with sides $x+7$, $6x+9$, $x+10$

19. Find the value of x so that the polygons have the same perimeter.

Rectangle with sides $x+4$, $x+4$, $x+1$; hexagon with all sides $2x$

Ⓐ 4

Ⓑ 3

Ⓒ 2

Ⓓ 1

20. Which of the following equations has a solution of 5?

Ⓕ $-12x - 6 = -10x + 4$

Ⓖ $12x - 6 = 10x + 4$

Ⓗ $12x + 6 = 10x - 4$

Ⓘ $12x - 6 = 10x - 4$

21. Carpet cleaner A charges $28.25 plus $18 a room. Carpet cleaner B charges $19.85 plus $32 a room. Which equation can be used to find the number of rooms for which the total cost of both carpet cleaners is the same?

Ⓐ $28.25x + 18 = 19.85x + 32$

Ⓑ $28.25 + 32x = 19.85 + 18x$

Ⓒ $28.25 + 18x = 19.85 + 32x$

Ⓓ $(28.25 + 18)x = (19.85 + 32)x$

Solve each equation.

22. $8g = 3(5g - 2)$

23. $12k + 7 = 20 - 3g$

24. $8y - 3 = 6y + 17$

25. $9g + 15 = (5g - 9)3$