Principles of Algebra Name/Date Clee / Today

ALL PROBLEMS CAN BE COMPLETED ON THIS WORKSHEET

WS 3C.2 – More Solving Equations with the Variable on Both Sides

#1-10, Solve each equation.

1. $10 + 3(4 - 6a) = -(6a + 12)$

$10 + 12 - 18a = -6a - 12$

$22 - 18a = -6a - 12$

$+6a \quad +6a$

$22 - 12a = -12$

$-12a = -34$

$a = \frac{-34}{-12} \rightarrow \boxed{a = \frac{17}{6}}$

2. $6 + 2(5 - 3m) = 2(2m + 4)$

$6 + 10 - 6m = 4m + 8$

$16 - 6m = 4m + 8$

$-4m \quad -4m$

$16 - 10m = 8$

$-10m = -8$

$m = \frac{-8}{-10} \Rightarrow \boxed{m = \frac{4}{5}}$

3. $2(4k + 3) = 8 + 6(2k - 3)$

$8k + 6 = 8 + 12k - 18$

$8k + 6 = -10 + 12k$

$-12k \quad -12k$

$-4k + 6 = -10$

$-4k = -16$

$\boxed{k = 4}$

4. $-2 - 4(2r - 1) = 3(6 - 2r)$

$-2 - 8r + 4 = 18 - 6r$

$2 - 8r = 18 - 6r$

$+6r \quad +6r$

$2 - 2r = 18$

$-2r = 16$

$\boxed{r = -8}$

5. $-4(7x + 9) = 3(3 - 5x) - 4x$

$-28x - 36 = 9 - 15x - 4x$

$-28x - 36 = 9 - 19x$

$+19x \quad +19x$

$-9x - 36 = 9$

$-9x = 45$

$\boxed{x = -5}$

6. $9p - 3(p + 4) + 2 = -3(5 + p)$

$9p - 3p - 12 + 2 = -15 - 3p$

$6p - 10 = -15 - 3p$

$+3p \quad +3p$

$9p - 10 = -15$

$9p = -5$

$\boxed{p = \frac{-5}{9}}$

7. $3(q+5)+2=-11-4q$

$3q+15+2=-11-4q$

$3q+17=-11-4q$

$+4q \qquad +4q$

$7q+17=-11$

$7q=-28$

$\boxed{q=-4}$

8. $6.5(z-2)=-2.5(3z+3)-6.5$

$6.5z-13=-7.5z-7.5-6.5$

$6.5z-13=-7.5z-14$

$+7.5z \qquad +7.5z$

$14z-13=-14$

$14z=-1$

$\boxed{z=-\frac{1}{14}}$

9. $11(2m+2)-6=4m+4(3m-2)$

$22m+22-6=4m+12m-8$

$22m+16=16m-8$

$-16m \qquad -16m$

$6m+16=-8$

$6m=-24$

$\boxed{m=-4}$

10. $3(1.5+2.5x)=-6.5+5.5x-2.5(4+2x)$

$4.5+7.5x=-6.5+5.5x-10-5x$

$4.5+7.5x=-16.5+0.5x$

$-0.5x \qquad -0.5x$

$4.5+7x=-16.5$

$7x=-21$

$\boxed{x=-3}$

11. The product of 3 and the sum of a number and 5, then added to 6 is the same as the product of −2 and 3 and decreased by the number, then minus 3. Find the number.

let n = the number $\quad 3(n+5)+6=-2(3-n)-3$

$3n+15+6=-6+2n-3$

$3n+21=-9+2n$

$-2n \qquad -2n$

$n+21=-9$

$n=-30$

$\boxed{\text{The number is } -30.}$