

ALGEBRA 2

#6 WKST

Name: _____
Period: _____

SOLVE EACH EQUATION. CHECK YOUR SOLUTION.

$$\begin{array}{r} 1. z - 19 = 34 \\ +19 \quad +19 \\ \hline z = 53 \end{array}$$

$$\begin{array}{r} 2. x + 13 = -7 \\ -13 \quad -13 \\ \hline x = -20 \end{array}$$

$$\begin{array}{r} 3. -y + 9 = 23 \\ -9 \quad -9 \\ \hline -y = 14 \end{array}$$

$$y = -14$$

$$\begin{array}{r} 4. \frac{-6z = 42}{-6 \quad -6} \\ \hline z = -7 \end{array}$$

$$\begin{array}{r} 5. 5x - 3 = -33 \\ +3 \quad +3 \\ \hline 5x = -30 \end{array}$$

$$\begin{array}{r} 6. -6y - 8 = 18 \\ +8 \quad +8 \\ \hline -6y = 26 \end{array}$$

$$\begin{array}{r} y = -4\frac{1}{3} \\ \text{or } -4.\overline{3} \end{array}$$

$$7. 3(2a + 3) - 4(3a - 6) = 15$$

$$\begin{array}{r} 6a + 9 - 12a + 24 = 15 \\ \cancel{6a} \quad \cancel{-12a} \\ -6a + 33 = 15 \\ -33 \quad -33 \\ -6a = -18 \\ a = 3 \end{array}$$

$$8. 5(c - 8) - 3(2c + 12) = -84$$

$$\begin{array}{r} 5c - 40 - 6c - 36 = -84 \\ \cancel{5c} \quad \cancel{-6c} \\ -1c - 76 = -84 \\ +76 \quad +76 \\ -1c = -8 \\ c = 8 \end{array}$$

$$9. -3(-2x + 20) + 8(x + 12) = 92$$

$$\begin{array}{r} 6x - 60 + 8x + 96 = 92 \\ \cancel{6x} \quad \cancel{+8x} \\ 14x + 36 = 92 \\ -36 \quad -36 \\ 14x = 56 \\ x = 4 \end{array}$$

$$10. -4(3y - 10) - 6(-7y - 6) = -74$$

$$\begin{array}{r} -12y + 40 + 42y + 36 = -74 \\ \cancel{-12y} \quad \cancel{+40} \\ 30y + 76 = -74 \\ -76 \quad -76 \\ 30y = -150 \\ y = -5 \end{array}$$

$$11. 7y - 2y + 4 + 3y = -20$$

$$\begin{array}{r} 8y + 4 = -20 \\ -4 \quad -4 \\ 8y = -24 \\ y = -3 \end{array}$$

$$12. 5g + 18 - 7g + 4g = 8$$

$$\begin{array}{r} 2g + 18 = 8 \\ -18 \quad -18 \\ 2g = -10 \\ g = -5 \end{array}$$

$$13. 5(-2x - 4) - 3(4x + 5) = 97$$

$$\begin{array}{r} -10x - 20 - 12x - 15 = 97 \\ \cancel{-10x} \quad \cancel{-20} \\ -22x - 35 = 97 \\ +35 \quad +35 \\ -22x = 132 \\ \frac{-22}{-22} \quad \frac{-22}{-22} \\ x = -6 \end{array}$$

$$14. -2(3y - 6) + 4(5y - 8) = 92$$

$$\begin{array}{r} -6y + 12 + 20y - 32 = 92 \\ \cancel{-6y} \quad \cancel{+12} \\ 14y - 20 = 92 \\ +20 \quad +20 \\ 14y = 112 \\ y = 8 \end{array}$$

$$15. \frac{2}{3}(6c - 18) + \frac{3}{4}(8c + 32) = -18$$

$$\begin{array}{r} 4c - 12 + 6c + 24 = -18 \\ \cancel{4c} \quad \cancel{-12} \\ 10c + 12 = -18 \\ -12 \quad -12 \\ 10c = -30 \\ c = -3 \end{array}$$

$$16. \frac{3}{5}(15a + 5) - \frac{1}{6}(18a - 12) = 38$$

$$\begin{aligned} 9a + 3 - 3a + 2 &= 38 \\ 6a + 5 &= 38 \\ -5 &\quad -5 \\ 6a &= 33 \\ a &= 5.5 \end{aligned}$$

$$17. \begin{array}{r} 5x - 9 = 11x + 3 \\ -5x \quad -5x \\ \hline -9 = 6x + 3 \\ -3 \quad -3 \\ \hline -12 = 6x \\ x = -2 \end{array}$$

$$18. \left(\frac{1}{y} + \frac{1}{4} = \frac{7}{12} \right) \text{ multiply by } 12y$$

$$\frac{12y}{12y} + \frac{12y}{4} = \frac{84y}{12}$$

then cancel or reduce

$$\begin{array}{r} 12 + 3y = 7y \\ -3y \quad -3y \\ \hline 12 = 4y \end{array}$$

$$y = 3$$

$$19. 5.4(3x - 12) + 3.2(2x + 6) = 88$$

$$\begin{array}{r} 16.2x - 64.8 + 6.4x + 19.2 = 88 \\ 22.6x - 45.6 = 88 \\ +45.6 \quad +45.6 \\ \hline 22.6x = 133.6 \\ 22.6 \quad 22.6 \\ x = 5.911\dots \end{array}$$

$$20. 3(a - 7) = 5(a + 3)$$

$$\begin{array}{r} 3a - 21 = 5a + 15 \\ -3a - 15 \quad -5a - 15 \\ \hline -36 = 2a \\ 2 \quad 2 \\ a = -18 \end{array}$$

$$21. -6(2y + 2) = 18 - 4(-4y - 9)$$

$$\begin{array}{r} -12y - 12 = 18 + 16y + 36 \\ -12y - 12 \quad +16y + 54 \\ +12y - 54 \quad +12y - 54 \\ \hline 66 = 28y \\ y = 2.357\dots \end{array}$$

Write an algebraic expression to represent each verbal expression.

22. the difference between the product of four and a number and six.

$$4x - 6$$

23. the product of the square of a number and eight.

$$8x^2$$

24. fifteen less than the cube of a number.

$$x^3 - 15$$

25. five more than the quotient of a number and four.

$$\frac{x}{4} + 5$$