

Equations Quiz Review

Name Key
 Math _____
 Date _____

I. Vocabulary • Equation, Evaluate, Variable, Solve, Distributive Property

- ① Variable A symbol used to represent a quantity that can change
- ② Equation A mathematical statement that two expressions are equivalent
- The
- ③ Distributive Property For all real numbers a, b, and c
 $a(b \pm c) = ab \pm ac$
- ④ Solve To find all solutions to an equation
- ⑤ Evaluate To find the value of

II 1-step + 2 step Equations

⑥ $y - 6 = -10$
 $\begin{array}{r} y - 6 = -10 \\ +6 \quad +6 \\ \hline y = -4 \end{array}$

⑦ $y + 8 = 3$
 $\begin{array}{r} y + 8 = 3 \\ -8 \quad -8 \\ \hline y = -5 \end{array}$

⑧ $-6y = 36$
 $\begin{array}{r} -6y = 36 \\ -6 \quad -6 \\ \hline y = -6 \end{array}$

⑨ $4x - 4 = -8x - 4$
 $\boxed{y = -32}$

⑩ $4y - 10 = 34$
 $\begin{array}{r} 4y - 10 = 34 \\ +10 \quad +10 \\ \hline 4y = 44 \\ \frac{4}{4} \quad \frac{4}{4} \\ \hline y = 11 \end{array}$

⑪ $-3y - 7 = 17$
 $\begin{array}{r} -3y - 7 = 17 \\ +7 \quad +7 \\ \hline -3y = 24 \\ -3 \quad -3 \\ \hline y = -8 \end{array}$

⑫ $\frac{y}{-3} - 3 = 5$
 $\begin{array}{r} \frac{y}{-3} - 3 = 5 \\ +3 \quad +3 \\ \hline -3 \times \frac{y}{-3} = 8x - 3 \\ \hline y = -24 \end{array}$

⑬ $\frac{2}{3}y + 4 = 8$
 $\begin{array}{r} \frac{2}{3}y + 4 = 8 \\ -4 \quad -4 \\ \hline \frac{2}{3}y = 4 \\ \frac{3}{2} \times \frac{2}{3} y = \frac{4}{1} \times \frac{3}{2} = \frac{12}{2} \\ \hline y = 6 \end{array}$

⑭ $\frac{y+5}{-10} = -6x - 10$
 $\begin{array}{r} y + 5 = 60 \\ -5 \quad -5 \\ \hline y = 55 \end{array}$

⑮ $4 \times \frac{y-7}{4} = -5 \times 4$
 $\begin{array}{r} y - 7 = -20 \\ +7 \quad +7 \\ \hline y = -13 \end{array}$

III Multi-Step Equations

(16) $4(y+3) = -12$ (17) $-3(-2y-4) = 48$ (18) $7(y-6) = 7$

$$\begin{array}{r} 4y + 12 = -12 \\ -12 \quad -12 \\ \hline 4y = -24 \\ \frac{4y}{4} = \frac{-24}{4} \\ y = -6 \end{array}$$

$$\begin{array}{r} 6y + 12 = 48 \\ -12 \quad -12 \\ \hline 6y = 36 \\ \frac{6y}{6} = \frac{36}{6} \\ y = 6 \end{array}$$

$$\begin{array}{r} 7y - 42 = 7 \\ +42 \quad +42 \\ \hline 7y = 49 \\ \frac{7y}{7} = \frac{49}{7} \\ y = 7 \end{array}$$

(19) $5y - 10 + 3y = 14$

$$\begin{array}{r} 8y - 10 = 14 \\ +10 \quad +10 \\ \hline 8y = 24 \\ \frac{8y}{8} = \frac{24}{8} \\ y = 3 \end{array}$$

(20) $-2y - 8 - 5y - 10 = -12$

$$\begin{array}{r} -7y + 2 = -12 \\ -2 \quad -2 \\ \hline -7y = -14 \\ \frac{-7y}{-7} = \frac{-14}{-7} \\ y = 2 \end{array}$$

(21) $12 = 3(y+4) + 6$

$$\begin{array}{r} 12 = 3y + 12 + 6 \\ 12 = 3y + 18 \\ -18 \quad -18 \\ \hline -6 = 3y \\ \frac{-6}{3} = \frac{3y}{3} \\ y = -2 \end{array}$$

(22) $\frac{3}{4}(8y-20) = 57$

$$\begin{array}{r} \frac{3}{4} \times \frac{8^2}{1} = \frac{6}{1} \\ \frac{3}{4} \times \frac{-20}{1} = \frac{-15}{1} \\ 6y - 15 = 57 \\ +15 \quad +15 \\ \hline 6y = 72 \\ \frac{6y}{6} = \frac{72}{6} \\ y = 12 \end{array}$$

(23) $\frac{1}{2}(4y+8) = -16$

$$\begin{array}{r} 2y + 4 = -16 \\ -4 \quad -4 \\ \hline 2y = -20 \\ \frac{2y}{2} = \frac{-20}{2} \\ y = -10 \end{array}$$

IV Variables on Both Sides

(24) $-4y = 30 - 9y$

$$\begin{array}{r} -4y = 30 - 9y \\ +9y \quad +9y \\ \hline 5y = 30 \\ \frac{5y}{5} = \frac{30}{5} \\ y = 6 \end{array}$$

(25) $5y + 4 = 3y$

$$\begin{array}{r} 5y + 4 = 3y \\ -3y \quad -3y \\ \hline 2y + 4 = 0 \\ -4 \quad -4 \\ \hline 2y = -4 \\ \frac{2y}{2} = \frac{-4}{2} \\ y = -2 \end{array}$$

(26) $3y - 5 = 2y - 3$

$$\begin{array}{r} 3y - 5 = 2y - 3 \\ -2y \quad -2y \\ \hline y - 5 = -3 \\ +5 \quad +5 \\ \hline y = 2 \end{array}$$

(27) $-y + 5 = -4y - 10$

$$\begin{array}{r} -y + 5 = -4y - 10 \\ +4y \quad +4y \\ \hline 3y + 5 = -10 \\ -5 \quad -5 \\ \hline 3y = -15 \\ \frac{3y}{3} = \frac{-15}{3} \\ y = -5 \end{array}$$

(28) $4(y+2) = 5(y-6)$

$$\begin{array}{r} 4y + 8 = 5y - 30 \\ -4y \quad -4y \\ \hline 8 = y - 30 \\ +30 \quad +30 \\ \hline 38 = y \\ y = 38 \end{array}$$

(29) $4 - 2y = 3(4 - y)$

$$\begin{array}{r} 4 - 2y = 12 - 3y \\ +3y \quad +3y \\ \hline 4 + y = 12 \\ -4 \quad -4 \\ \hline y = 8 \end{array}$$

(30) $y - 9(y-2) = 2y - 12$

$$\begin{array}{r} y - 9y + 18 = 2y - 12 \\ -8y + 18 = 2y - 12 \\ +8y \quad +8y \\ \hline 18 = 10y - 12 \\ +12 \quad +12 \\ \hline 30 = 10y \\ \frac{30}{10} = \frac{10y}{10} \\ y = 3 \end{array}$$

(31) $7(y-6) = 7y + 10$

$$\begin{array}{r} 7y - 42 = 7y + 10 \\ -7y \quad -7y \\ \hline -42 = 10 \end{array}$$

no solution

(32) $-5(y-2) = -3y - 2y + 10$

$$\begin{array}{r} -5y + 10 = -3y - 2y + 10 \\ -5y + 10 = -5y + 10 \\ +5y \quad +5y \\ \hline 10 = 10 \end{array}$$

all real #s