

Key

Math 1

Name _____

Date _____

Lesson 1-1: Solving Equations

Learning Goals:

- I can solve equations for a specified variable.

Solve the following: Nearst thousandth!

$$1. \begin{array}{r} 3x+5=9 \\ -5 \quad -5 \\ \hline 3x=4 \\ \frac{3x}{3}=\frac{4}{3} \end{array}$$

$$\boxed{x = \frac{4}{3}}$$

$$2. \begin{array}{r} 2w+8.5=13.4w \\ 8.5=11.4w \\ \frac{8.5}{11.4}=\frac{11.4w}{11.4} \end{array}$$

$$\boxed{w \approx 0.746}$$

$$3. \begin{array}{r} -3x+5.2x-9=-5 \\ 2.2x-9=-5 \\ 2.2x=4 \end{array}$$

$$\boxed{x = 1.81}$$

$$4. \begin{array}{r} 3f^2+3=15 \\ 3f^2=12 \\ f^2=4 \end{array}$$

Explain the \pm

$$\boxed{f = \pm 2}$$

$$5. \begin{array}{r} \left(\frac{x}{3}+5=2x\right) \cdot 3 \\ x+15=6x \\ 15=5x \end{array}$$

$$\boxed{x=3}$$

$$6. \begin{array}{r} \left(\frac{2n}{5}-3n+2=0\right) \cdot 5 \\ 2n-15n+10=0 \\ -13n=-10 \end{array}$$

$$n = \frac{-10}{-13} = \frac{10}{13}$$

$$7. \begin{array}{r} \widehat{3(h+1)} - \widehat{(2h-6)} = 4 \\ 3h+3-2h+6=4 \\ h+9=4 \end{array}$$

$$\boxed{h=-5}$$

$$8. \widehat{x(x-3)} - 5 = 7 - 3x \approx 0.769$$

$$\begin{array}{r} x^2 - 3x - 5 = 7 - 3x \\ x^2 - 5 = 7 \\ x^2 = 12 \end{array}$$

$$\boxed{x = \pm\sqrt{12} \approx \pm 3.464}$$

$$9. \begin{array}{r} 5=9-(3x+4) \\ 5=9-3x-4 \\ 5=5-3x \\ 0=-3x \end{array}$$

$$\boxed{x=0}$$

$$10. \begin{array}{r} -2(x^2-12)=2x^2-1 \\ -2x^2+24=2x^2-1 \\ 25=4x^2 \end{array}$$

$$\begin{array}{r} \sqrt{6.25} = \sqrt{x^2} \\ \boxed{x = \pm 2.5} \end{array}$$

$$11. \begin{array}{r} \frac{3}{5}-7=3-(r+4) \\ -6.4=3-r-4 \\ -6.4=-r-1 \\ -5.4=-r \end{array}$$

$$\boxed{r=5.4}$$

$$12. \frac{5}{3}k + \frac{3}{4} = \frac{7}{2}$$

$$\frac{3}{8} \cdot \frac{5}{3} k = 2.75 \cdot \frac{3}{5}$$

$$k = 1.65$$

$$15. \left(\frac{2}{3}(3x+6) = \frac{1}{4}x(x+8) \right) \cdot 12$$

$$8(3x+6) = 3x(x+8)$$

$$24x + 48 = 3x^2 + 24x$$

$$48 = 3x^2$$

$$16 = x^2$$

$$x = \pm 4$$

$$18. \frac{3}{4}x^2 = \frac{8}{3} \cdot \frac{4}{3}$$

$$x^2 = \frac{16}{9}$$

$$x = \pm \frac{4}{3}$$

$$21. 2w^2 - 2.32 = 7.6w^2 + 7.45$$

$$-9.77 = 5.6w^2$$

$$-1.745 = w^2$$

No real solution

$$13. \left(\frac{4x}{3} + 7 = \frac{-2}{3}(4x-9) \right) \cdot 3$$

$$4x + 21 = -2(4x-9)$$

$$4x + 21 = -8x + 18$$

$$12x = -3$$

$$x = -\frac{1}{4}$$

$$16. 3m(m-5) + 5m = 5m(-2+m)$$

$$3m^2 - 15m + 5m = -10m + 5m^2$$

$$3m^2 - 10m = -10m + 5m^2$$

$$0 = 2m^2$$

$$m = 0$$

$$19. \left(\frac{x^2}{5} - 2 = -82 \right) \cdot 5$$

$$x^2 - 10 = -410$$

$$x^2 = 400$$

$$x = \pm 20$$

$$20. -2x(-.5x+6.4) = -12.8x+5x^2-6.5$$

$$x^2 - 12.8x = -12.8x + 5x^2 - 6.5$$

$$6.5 = 4x^2$$

$$1.625 = x^2$$

$$x \approx \pm 1.275$$

$$22. (3-2g)7 = 5g - (2g+7)$$

$$21 - 14g = 5g - 2g - 7$$

$$21 - 14g = 3g - 7$$

$$28 = 17g$$

$$g = \frac{28}{17} \approx 1.647$$

$$14. \left(\frac{1}{3}(x-6) = \frac{3}{5}(2x-4) \right) \cdot 15$$

$$5(x-6) = 9(2x-4)$$

$$5x - 30 = 18x - 36$$

$$6 = 13x$$

$$x = \frac{6}{13} \approx 0.462$$

$$17. -5x^2 + 2 = x^2 + 9$$

$$-7 = 6x^2$$

$$\frac{-7}{6} = x^2$$

No real solution