

NAME: \_\_\_\_\_

Show complete workings! When necessary reduce answers to lowest terms.

Solve each equation.

$$1. \quad \frac{-3.5x}{-3.5} = \frac{12.8}{-3.5}$$

$$\boxed{x = -3.76}$$

$$2. \quad \frac{\frac{1}{4}x^3}{x^3} = -\frac{\frac{2}{3}x^4}{x^4}$$

$$\frac{3}{12}x = -\frac{8}{12}$$

$$\frac{3x}{3} = -\frac{8}{3} \rightarrow \boxed{x = -\frac{8}{3}}$$

$$3. \quad \frac{9}{x} = \frac{2.5}{1}$$

$$\frac{-2.5x}{-2.5} = \frac{9}{-2.5}$$

$$\boxed{x = -3.6}$$

$$4. \quad 9.2x = 4 + 5.4x$$

$$-5.4x \quad -5.4x$$

$$\frac{3.8x}{3.8} = \frac{4}{3.8}$$

$$\boxed{x = 1.1}$$

$$5. \quad \frac{1}{2}x = -\frac{3}{1} + \frac{x}{1} \times 2$$

$$\frac{1}{2}x = -\frac{6}{2} + \frac{2x}{2}$$

$$1x = -6 + 2x$$

$$-2x \quad -2x$$

$$\frac{-1x}{-1} = \frac{-6}{-1} \quad \boxed{x = 6}$$

$$6. \quad \frac{\frac{2}{3}x^2}{x^2} - \frac{\frac{1}{2}x^3}{x^3} = \frac{3}{1} \times 6$$

$$\frac{4}{6} - \frac{3}{6}x = \frac{18}{6}$$

$$4 - 3x = 18$$

$$-4 \quad -4$$

$$\frac{-3x}{-3} = \frac{14}{-3} \rightarrow \boxed{x = -\frac{14}{3} = -4\frac{2}{3}}$$

$$7. \quad \frac{x}{4} - 2 = 1.5$$

$$+2 \quad +2$$

$$\frac{x}{4} = 3.5$$

$$\frac{x}{4} \times 4 = 3.5 \times 4$$

$$\boxed{x = 14}$$

$$8. \quad \frac{3}{4}(x+2) = 1$$

$$\frac{3}{4}x + \frac{6}{4} = \frac{4}{4}$$

$$3x + 6 = 4$$

$$-6 \quad -6$$

$$\frac{3x}{3} = -\frac{2}{3}$$

$$\boxed{x = -\frac{2}{3}}$$

$$9. \quad 1.5(x + 3) = 0.5(3 - x)$$

$$1.5x + 4.5 = 1.5 - 0.5x$$

$$+0.5x \quad +0.5x$$

$$(2x) + 4.5 = 1.5$$

$$-4.5 \quad -4.5$$

$$\frac{2x}{2} = \frac{-3}{2}$$

$$x = \frac{-3}{2} = -1.5$$

$$10. \quad \frac{2}{3}(2x - 5) = -\frac{3}{5}(4 - x)$$

$$\frac{4x}{3} - \frac{10}{3} = -\frac{12}{5} + \frac{3x}{5}$$

$$\frac{20x}{15} - \frac{50}{15} = -\frac{36}{15} + \frac{9x}{15}$$

$$20x - 50 = -36 + 9x$$

$$-9x \quad -9x$$

$$(11x) - 50 = -36$$

$$+50 \quad +50$$

$$\frac{11x}{11} = \frac{14}{11} \rightarrow x = \frac{14}{11} = 1\frac{3}{11}$$

11. Caitlin had \$335.00 in her bank account. She withdrew \$15.00 each week to pay for a piano lesson. She now has \$155.00. Determine how many piano lessons Caitlin attended. (Write an equation and solve).

$x = \# \text{ of weeks}$

$$335 - 15x = 155$$

$$-335 \quad -335$$

$$-15x = -180$$

$$\frac{-15x}{-15} = \frac{-180}{-15}$$

$$x = 12$$

Caitlin attended 12 piano lessons

12. One-half of the sum of a number and 2 is the same as one-fifth of the number? What is the number?

$$\frac{1}{2}(x + 2) = \frac{1}{5}x$$

$$\frac{1}{2}x + 1 = \frac{1}{5}x$$

$$\frac{5}{10}x + \frac{10}{10} = \frac{2}{10}x$$

$$\frac{5}{10}x + \frac{10}{10} = \frac{2}{10}x$$

$$5x + 10 = 2x$$

$$-2x \quad -2x$$

$$3x + 10 = 0$$

$$-10 \quad -10$$

$$\frac{3x}{3} = \frac{-10}{3}$$

$$x = \frac{-10}{3} = -3\frac{1}{3}$$