Homework: Solving Equations Name: _____

Solve each equation. Then check your solution.

1) $-4c - 11 = 4c + 21$

$+4c \quad +4c$

$-11 = 8c + 21$

$-21 \quad -21$

$\frac{-32}{8} = \frac{8c}{8}$

$c = -4$

2) $7a - 3 = 3 - 2a$

$+2a \quad +2a$

$9a - 3 = 3$

$+3 \quad +3$

$\frac{9a}{9} = \frac{6}{9}$

reduce!

$a = \frac{6}{9} = \frac{2}{3}$

3) $4(4 - w) = 3(2w + 2)$

$16 - 4w = 6w + 6$

$+4w \quad +4w$

$16 = 10w + 6$

$-6 \quad -6$

$\frac{10}{10} = \frac{10w}{10}$

$1 = w$

4) $5(-6 - 3d) = 3(8 + 7d)$

$-30 - 15d = 24 + 21d$

$+15d \quad +15d$

$-30 = 24 + 36d$

$-24 \quad -24$

$\frac{-54}{36} = \frac{36d}{36}$

$d = \frac{-54}{36} = \frac{-3}{2}$

or $d = -1.5$

5) $18 - 4k = -10 - 4k$

different

same

no solution

$\emptyset$

6) $\frac{1}{2}(9 - z) = z$

$9 - z = 2z$

$+z \quad +z$

$\frac{9}{3} = \frac{3z}{3}$

$z = 3$

7) $1.4f + 1.1 = 8.3 - f$

$+1f \quad +f$

$2.4f + 1.1 = 8.3$

$-1.1 \quad -1.1$

$\frac{2.4f}{2.4} = \frac{7.2}{2.4}$

$f = 3$

8) $3(3y - 1.8) = \frac{1}{3}(-5.4 + 9y)$

$9y - 5.4 = -5.4 + 9y$

same

same

All real #s $\mathbb{R}$

9) $3(5j + 2) = 2(3j - 6)$

$15j + 6 = 6j - 12$

$-6j \quad -6j$

$9j + 6 = -12$

$-6 \quad -6$

$\frac{9j}{9} = \frac{-18}{9}$

$j = -2$

10) $9(4b - 1) = 2(9b + 3)$

$36b - 9 = 18b + 6$

$-18b \quad -18b$

$18b - 9 = 6$

$+9 \quad +9$

$\frac{18b}{18} = \frac{15}{18}$

$b = \frac{5}{6}$

11) $\left(\frac{5}{2}v - v = 3 + \frac{3}{2}v\right)2$

$5v - 2v = 6 + 3v$

$3v = 6 + 3v$

No solution

12) $\frac{-3(x-8)}{-3} = \frac{24}{-3}$

$x - 8 = -8$

$+8 \quad +8$

$x = 0$

13) $\frac{a-8}{12} = \frac{2a+5}{3}$ ·12

$a - 8 = 4(2a + 5)$

$a - 8 = 8a + 20$

$-a \quad -a$

$-8 = 7a + 20$

$-20 \quad -20$

$-28 = 7a$

$a = -4$

14) $8(3y - 2) = 7(-3y + 2)$

$24y - 16 = -21y + 14$

$+21y \quad +21y$

$45y - 16 = 14$

$+16 \quad +16$

$45y = 30$

$\frac{45}{45} \quad \frac{30}{45}$

$y = \frac{2}{3}$

15) $\left(\frac{1}{2} - \frac{5}{8}x = \frac{7}{8}x + \frac{7}{2}\right)8$

$4 - 5x = 7x + 28$

$+5x \quad +5x$

$4 = 12x + 28$

$-28 \quad -28$

$-24 = 12x$

$\frac{-24}{12} = \frac{12x}{12}$

$x = -2$

16) $2(a - 8) + 7 = 5(a + 2) - 3a - 19$

$2a - 16 + 7 = 5a + 10 - 3a - 19$

$2a - 9 = 2a - 9$

all real #s

Define a variable. Write an equation that models each situation. Use correct solving steps to find a solution, and be sure to include units in your answer.

17. Math-hero is looking at two different travel agencies to plan his vacation. ABC Travel offers a plane ticket for $295 and a rental car for $39 per day. M & M Travel offers a plane ticket for $350 and a rental car for $33 per day. What is the minimum number of days that Math-hero's vacation should be for M & M Travel to have the better deal?

x = # of days

ABC: $39x + 295$ M&M: $33x + 350$

$-33x \quad -33x$

$6x + 295 = 350$

$6x = 55$

$x = \frac{55}{6}$

$x \approx 9.17$

10 days should be the minimum.

ABC

9 days = $646

10 days = $685

M & M

9 days = $647

10 days $680