Algebra RH – Answer Key **HW #_____**

1) $|2x-5|=3$

$2x-5=3$ $\quad$ $2x-5=-3$

$2x=8$ $\quad$ $2x=2$

$\boxed{x=4}$ $\quad$ $\boxed{x=1}$

2) $|3x-2|=6x-14$

$3x-2=6x-14$

$-2=3x-14$

$12=3x$

$\boxed{4=x}$

$3x-2=-(6x-14)$

$3x-2=-6x+14$

$9x-2=14$

$9x=16$

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

Reject because the absolute value cannot be a negative value.

$6\left(\frac{16}{9}\right)-14=-3\frac{1}{3}$

3) $|5x-4|+1=15$

$|5x-4|=14$

$5x-4=14$ $\quad$ $5x-4=-14$

$5x=18$ $\quad$ $5x=-10$

$x=\frac{18}{5}$ $\quad$ $\boxed{x=-2}$

4) $p=2.59c+1.72(8-c)$ $\quad$ ***p* = 18.11**

$18.11=2.59c+1.72(8-c)$

$100[18.11]=100[2.59c]+100[1.72(8-c)]$

$1811=259c+172(8-c)$

$1811=259c+1376-172c$

$1811=87c+1376$

$435=87c$

$5=c$

5 lbs of cashews

5) $0.35x+0.6=0.1x+1$

$100[0.35x+0.6]=100[0.1x+1]$

$35x+60=10x+100$

$25x+60=100$

$25x=40$

$x=\frac{40}{25}=\boxed{\frac{8}{5}}$

6) $4-(x+0.2)=2x-0.1$

$10[4]-10[x+0.2]=10[2x-0.1]$

$40-10x-2=20x-1$

$-10x+38=20x-1$

$38=30x-1$

$39=30x$

$x=\frac{39}{30}=\boxed{\frac{13}{10}}$

7) $2.5(2-3x)=1.5(3x-2)$

$10[2.5(2-3x)]=10[1.5(3x-2)]$

$25(2-3x)=15(3x-2)$

$50-75x=45x-30$

$50=120x-30$

$80=120x$

$x=\frac{80}{120}=\boxed{\frac{2}{3}}$

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

$6\left[\frac{1}{3}(x+1)\right]=6\left[\frac{1}{2}(x+2)\right]$

$2(x+1)=3(x+2)$

$2x+2=3x+6$

$2=x+6$

$\boxed{-4=x}$

9) $\frac{3x-3}{5}=\frac{4x-2}{6}$

$6(3x-3)=5(4x-2)$

$18x-18=20x-10$

$-18=2x-10$

$-8=2x$

$\boxed{-4=x}$

10) $\frac{7x}{10}-\frac{x}{5}=\frac{3}{2}$

$10\left(\frac{7x}{10}\right)-10\left(\frac{x}{5}\right)=10\left(\frac{3}{2}\right)$

$7x-2x=15$

$5x=15$

$\boxed{x=3}$

11) $\frac{x+3}{4}+\frac{x+2}{5}=\frac{5}{2}$

$20\left(\frac{x+3}{4}\right)+20\left(\frac{x+2}{5}\right)=20\left(\frac{5}{2}\right)$

$5(x+3)+4(x+2)=10(5)$

$5x+15+4x+8=50$

$9x+23=50$

$9x=27$

$\boxed{x=3}$

12) $\frac{3x+6}{4}-\frac{2x+2}{3}=-1$

$12\left(\frac{3x+6}{4}\right)-12\left(\frac{2x+2}{3}\right)=12(-1)$

$3(3x+6)-4(2x+2)=-12$

$9x+18-8x-8=-12$

$x+10=-12$

$\boxed{x=-22}$

13) $\frac{x}{6}-1=\frac{x-20}{8}$

$\frac{x}{6}-\frac{6}{6}=\frac{x-20}{8}$

$\frac{x-6}{6}=\frac{x-20}{8}$

$8(x-6)=6(x-20)$

$8x-48=6x-120$

$2x-48=-120$

$2x=-72$

$\boxed{x=-36}$

14) $\frac{5x+1}{6}=\frac{x+2}{3}$

$3(5x+1)=6(x+2)$

$15x+3=6x+12$

$9x+3=12$

$9x=9$

$\boxed{x=1}$

15) $\frac{4x+5}{6}-\frac{x+7}{4}=\frac{1}{2}$

$12\left(\frac{4x+5}{6}\right)-12\left(\frac{x+7}{4}\right)=12\left(\frac{1}{2}\right)$

$2(4x+5)-3(x+7)=6$

$8x+10-3x-21=6$

$5x-11=6$

$5x=17$

$\boxed{x=\frac{17}{5}}$