Name: Key

2.1,2.3 & 2.4 Review

1) Two cars travel the same distance. The first car travels at a rate of 40 miles per hour and reaches its destination in t hours. The second car travels at a rate of 55 miles per hour and reaches its destination 3 hours earlier than the first car. How long does it take for the first car to reach its destination?

Rate of car 1	·	Time for car 1	=	Rate of car 2	·	Time for car 2
40		t	=	50		$(t-3)$

$40t = 50t - 150$

$-10t = -150$

$t = 15$ hours

2) A health club charges nonmembers \$2 per day to swim and \$5 per day for aerobics classes. Members pay a yearly fee of \$200 plus \$3 per day for aerobics classes. Write and solve an equation to find the number of days you must use the club to justify a yearly membership.

$2n + 5n = 200 + 3n$

$4n = 200$

$n = 50$ days

3) $\frac{5+y}{3} - 7 = 53$

$\frac{5+y}{3} = 60$

$5 + y = 180$

$y = 175$

4) $-12x + 8 + 5x = 14$

$-7x + 8 = 14$

$-8 \quad -8$

$7x = 6$

$x = \frac{6}{7}$

5) $4m - 3 + 12 - 6m = -10m + 1 + 8m$

$-2m + 9 = 2m + 1$

$9 = 1$

no solution

6) Forty-six times a number 'n' is subtracted by two times the quantity of the product of three times 'n' minus 15. This value is equivalent to sixty. Translate this into mathematical symbols and solve.

$46n - 2(3n - 15) = 60$

$46n - 6n + 30 = 60$

$40n = 30$

$n = \frac{3}{4}$

7) Victor has \$60 in savings. He plans to save \$45 a month from money he earns baby-sitting. In how many months will his savings be \$600?

$60 + 45n = 600$

$\frac{45n}{45} = \frac{540}{45}$

$n = 12$ months

8) Given the problem $-2 = \frac{7}{5}x + 5$, we've discussed several different ways to approach it. Below are three. Solve all three to verify the method works. Then, select which way you like and explain why.

a)

$-2 = \frac{7}{5}x + 5$

$-7 = \frac{7}{5}x$

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

$-5 = x$

b)

$-2 = \frac{7}{5}x + 5$

$-7 = \frac{7}{5}x$

$(5)(-7) = (5)\frac{7}{5}x$

$-35 = 7x$

$\frac{-35}{7} = \frac{7x}{7}$

$-5 = x$

c)

$-2 = \frac{7}{5}x + 5$

$-7 = \frac{7}{5}x$

$\frac{-7}{\frac{7}{5}} = \frac{\frac{7}{5}x}{\frac{7}{5}}$

$-5 = x$

9) The problem $-10(t + 2) = 30$ can be solved multiple ways. One method is in two steps. See if you can come up with that approach and another.

$t + 2 = -3$

$t = -5$