*Systems Mix-up (the choice is yours…)*

***As we approach our word problem study … we will want to use the most efficient way to solve a system. These examples will review both methods and we will decide which method seems easiest*** 😊

***Solve the following systems***

***a)*** $x - 6y = 10$
$4x + y = 4$

***Pretty easy to make*** $x = 10 + 6y$ ***and sub in*** $4(10 + 6y) + y = 4$

$40 + 24y + y = 4$ $25y = -36$ $y = \frac{-36}{25}$ thus $x = 10 + 6\left(\frac{-36}{25}\right)$ $x = \frac{34}{25}$ or $\left(\frac{34}{25}, \frac{-36}{25}\right)$

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***b)*** $5x - 3y = 10$
$2x - y = 3$ *x3 looks easy (same signs so -)*

$5x - 3y = 10$
$-\quad \underline{6x - 3y = 9}$
$-x = 1$ $x = -1$ $2(-1) - 3 = y$ $y = -5$ or $(-1, -5)$

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***c)*** $5(x - 2y) + 7 = 4x$
$9x - (x + y) = 12$

*It's too soon to decide on a method … need to clean these up*

$5x - 10y + 7 = 4x$ $x - 10y = -7$ … $x = -7 + 10y$ and sub in
$9x - x - y = 12$ $8x - y = 12$

$8(-7 + 10y) - y = 12$ $-56 + 80y - y = 12$ $79y = 68$ $y = \frac{68}{79}$ $x = -7 + 10(\frac{68}{79})$
$x = \frac{127}{79}$ or $\left(\frac{127}{79}, \frac{68}{79}\right)$

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***d)*** $\frac{x}{2} - 7y = -17$ *x2*
$\frac{x}{4} + \frac{y}{3} = 3$ *x12* *again, it's too soon to decide on a method … need to clean these up*

$x - 14y = -34$ *x3* $3x - 42y = -102$
$3x + 4y = 36$ $-\quad \underline{3x + 4y = 36}$
$-46y = -138$ $y = 3$ $x = -34 + 14(3)$ $x = 8$ or (8, 3)

***Notice I used the LCM of the denominators in each case … but I just needed a # to cancel denominators***

**Assignment = worksheet**

***Systems mix-up … Solve using the method of your choice***

***1a)*** $2c - d = -2$
$3c + 2d = -10$

***b)*** $a = 3 - 4b$
$2a + 5b = 3$

***c)*** $x = 5 + 2y$
$2x - 3y = 6$

***d)*** $2y - x = 5$
$3y - 2x = 7$

***e)*** $x + 2y = -3$
$2x + 3y = -4$

***f)*** $8M - 3W = -10$
$2M - 5W = 6$

***g)*** $4x + 3y = 15$
$8x - 9y = 15$

***h)*** $3B + 6Q = -1$
$4B - 5Q = -22$

***i)*** $F = 3E - 2$
$5E + 2F = 3$

***j)*** $2x - 5y = 12$
$x = -9 - 10y$

***k)*** $y = 5 - x$
$y = \frac{1}{2}x + 3$

***l)*** $3x - 2y = -12$
$x - 4y = 8$

***m)*** $6x - 5y = -3$
$9x - 2y = 1$

***n)*** $3R + 4 = -4T$
$7R + 11 = -6T$

***o)*** $10x = 17 - 15y$
$15x = 25y - 3$

***p)*** $4x - 5 = 2y$
$1 = 5y - 10x$

***q)*** $2(x - 1) - 3(y - 3) = 0$
$3(x + 2) - (y - 7) = -7$

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