Writing Linear Equations in Standard Form

Standard Form:

$$Ax + By = C$$

Rules

- A, B, and C must all be integers.
- A has to be positive
- The GCF (Greatest Common Factor) of A, B, and C must = 1

Strategies:

It can be as easy as using Properties of Equality to get all the terms in their proper place.

Ex/

$$\begin{array}{r} 3y = -5x + 7 \\ +5x \quad +5x \\ \hline 5x + 3y = 7 \end{array}$$

BUT

There may be times when we have to deal with fractions first

$$\begin{array}{r} 2y = -\frac{3}{5}x + 4 \\ 5\left[2y = -\frac{3}{5}x + 4\right] \\ 10y = -3x + 20 \\ +3x \quad +3x \\ \hline 3x + 10y = 20 \end{array}$$

Write each equation in proper Standard Form. Show all algebraic work, use your notebook if you need more room.

1. $-1[-2x + y = 6]$

$2x - y = -6$

2. $y = x - 7$

$-y \quad -y$

$0 = x - y - 7$

$+7 \quad +7$

$7 = x - y$

$x - y = 7$

3. $-3x = 5 - 10y$

$+10y \quad +10y$

$-1[-3x + 10y = 5]$

$3x - 10y = -5$

4. $-2x + 8y = -14$

$\frac{}{-2} \quad \frac{}{-2} \quad \frac{}{-2}$

$x - 4y = 7$

5. $3\left[y = \frac{2}{3}x - \frac{5}{3}\right]$ = $2x - 3y = 5$

$3y = 2x - 5$

$-2x \quad -2x$

$-1\,[-2x + 3y = -5]$

6. $7x = -8y$

$+8y \quad +8y$

$7x + 8y = 0$

7. $15\left[\frac{4}{5}x = \frac{1}{3}y - 5\right]$

$12x = 5y - 75$

$-5y \quad -5y$

$12x - 5y = -75$

8. $-2y = 8x - 7$

$-8x \quad -8x$

$-1\,[-8x - 2y = -7]$

$8x + 2y = 7$

9. $8y - 2 = 2x$

$-8y \quad -8y$

$\frac{-2}{2} = \frac{2x}{2} - \frac{8y}{2}$

$-1 = x - 4y$

$x - 4y = -1$

10. $6y = -4x - 2$

$+4x \quad +4x$

$\frac{4x}{2} + \frac{6y}{2} = \frac{-2}{2}$

$2x + 3y = -1$

11. $4\left[y = -\frac{1}{4}x\right]$

$4y = -x$

$+x \quad +x$

$x + 4y = 0$

12. $3y = 15x + 6$

$-15x \quad -15x$

$\frac{-15x}{-3} + \frac{3y}{-3} = \frac{6}{-3}$

$5x - y = -2$

13. $2\left[y = \frac{3}{2}x + 7\right]$

$2y = 3x + 14$

$-3x \quad -3x$

$-1\,[-3x + 2y = 14]$

$3x - 2y = -14$

14. $6\left[y = \frac{1}{6}x + \frac{1}{2}\right]$ = $x - 6y = -3$

$6y = x + 3$

$-x \quad -x$

$-1\,[-x + 6y = 3]$

15. $60x - 40 = 5y$ = $12x - y = 8$

$-5y \quad -5y$

$60x - 5y - 40 = 0$

$+40 \quad +40$

$\frac{60x}{5} - \frac{5y}{5} = \frac{40}{5}$

16. $7\left[y = 3x + \frac{2}{7}\right]$ = $21x - 7y = -2$

$7y = 21x + 2$

$-21x \quad -21x$

$-1\,[-21x + 7y = 2]$

17. $12\left[-\frac{3}{4}x + \frac{5}{6}y = \frac{1}{2}\right]$

$9x - 10y = -6$

18. $6\left[-\frac{2}{3}x - \frac{5}{2}y = 4\right]$

$4x + 15y = -24$