11-11-13

3rd Trig

Standard Form

$Ax + By = C$ $\quad 2x + 5y = 6$

① A, B, & C must be Integers

② A must be +. (whole #)

③ A, B, & C must have gcf of 1.

$x + 2y = 3$

$2x + 4y = 6$

$5x + 10y = 15$

Let's put these in standard form.

① $-1[-2x + y = 7]$

$2x - y = -7$

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

$2x + 15y = 6$

③ $10\left[\frac{1}{2}x + \frac{2}{5}y = 7\right]$

$5x + 4y = 70$

$\frac{10}{1} \cdot \frac{1}{2} = \frac{10}{2} = 5$

$\frac{10}{1} \cdot \frac{2}{5} = \frac{20}{5} = 4$

④ $-12\left[-\frac{3}{4}x + \frac{1}{3}y = 1\right]$

$9x - 4y = -12$

$\frac{-12}{1} \cdot \frac{-3}{4} = \frac{36}{4} = 9$

$\frac{-12}{1} \cdot \frac{1}{3} = \frac{-12}{3} = -4$

⑤ $2y = x + 7$

$-x \quad -x$

$-1[-x + 2y = 7]$

$x - 2y = -7$

① Give the equation in standard form that goes through $(1,7)$ and is parallel to $y = \frac{1}{2}x + 8$.

$y - y_1 = m(x - x_1)$

$y - 7 = \frac{1}{2}(x - 1)$

$y - 7 = \frac{1}{2}x - \frac{1}{2}$

$+7 \quad +7$

$y = \frac{1}{2}x + 6\frac{1}{2}$

$-\frac{1}{2}x \quad -\frac{1}{2}x$

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

$x - 2y = -13$

Give equation in standard form that has a slope of $\frac{2}{3}$ and goes through $(6,12)$.

$y - y_1 = m(x - x_1)$

$y - 12 = \frac{2}{3}(x - 6)$ $\quad \frac{2}{3} \cdot \frac{6}{1} = \frac{12}{3} = 4$

$y - 12 = \frac{2}{3}x - 4$

$+12 \quad +12$

$y = \frac{2}{3}x + 8$

$-\frac{2}{3}x \quad -\frac{2}{3}x$

$-3\left[-\frac{2}{3}x + y = 8\right]$

$2x - 3y = -24$

Give the equation in standard form that goes through $(2,1)$ and is $\perp$ to $y = \frac{1}{3}x - 5$. $\quad m = -3$

$y - y_1 = m(x - x_1)$

$y - 1 = -3(x - 2)$

$y - 1 = -3x + 6$

$+1 \quad +1$

$y = -3x + 7$

$+3x \quad +3x$

$3x + y = 7$

11-11-13
4th Trig

Standard form
$Ax + By = C$ $\quad 2x+7y=4$

3 Rules

① A, B, C must be Integers (No fractions)

② A must be positive (whole #)

③ A, B, C must have a gcf of 1.
(e.g. $2x+6y=10$ would simplify to $x+3y=5$)

Change to standard form:

① $-1[-2x+y=7]$
$2x-y=-7$

② $4[\frac{1}{4}x+y=5]$
$x+4y=20$

③ $3[\frac{2}{3}x+\frac{1}{3}y=5]$
$2x+y=15$
$\frac{3}{1}\cdot\frac{2}{3}=\frac{6}{3}=2$
$\frac{3}{1}\cdot\frac{1}{3}=\frac{3}{3}=1$

④ $6[\frac{1}{2}x+\frac{2}{3}y=1]$
$3x+4y=6$

⑤ $y=2x+4$
$-2x \quad -2x$
$-1[-2x+y=4]$
$2x-y=-4$

Give the equation in Standard form that goes through $(2,4)$ and is parallel to $y = 6x - 1$.

$y - y_1 = m(x - x_1)$

$y - 4 = 6(x - 2)$

$y - 4 = 6x - 12$

$+4 \quad +4$

$y = 6x - 8$

$-6x \quad -6x$

$-1[-6x + y = -8]$

$6x - y = 8$

Give the equation in Standard form that is $\perp$ to $y = 2x + 1$ and goes through $(4,6)$.

$\perp m = -\frac{1}{2}$

$y - y_1 = m(x - x_1)$

$y - 6 = -\frac{1}{2}(x - 4)$

$y - 6 = -\frac{1}{2}x + 2$

$+6 \quad +6$

$y = -\frac{1}{2}x + 8$

$+\frac{1}{2}x \quad +\frac{1}{2}x$

$2\left[\frac{1}{2}x + y = 8\right]$

$x + 2y = 16$