10-24-19 4th Trig

Standard form

$Ax + By = C$

$2x + 3y = 10$

① No fractions

② A value must be +

③ GCF of A, B, C is 1.

Rearrange into Standard form

① $y = 2x + 6$

$-2x \quad -2x$

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

$2x - y = -6$

② $y = \frac{2}{3}x + 5$

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

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

$2x - 3y = -15$

③ $y = -\frac{3}{5}x + 4$

$+\frac{3}{5}x \quad +\frac{3}{5}x$

$5\left[\frac{3}{5}x + y = 4\right]$

$3x + 5y = 20$

$\frac{5}{1} \cdot \frac{3}{5} = \frac{15}{5} = 3$

$\frac{8^1}{1} \cdot \frac{3}{8_1} = \frac{3}{1} = 3$

(4) $\frac{1}{2}x + \frac{3}{5}y = 2$

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

$5x + 6y = 20$

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

$\frac{10}{1} \cdot \frac{3}{5} = \frac{30}{5} = 6$

(5) What is slope of line that is $\perp$ to $y = \frac{2}{3}x + 6$?

$m = \frac{2}{3} \quad \therefore \perp m = -\frac{3}{2}$

(6) Give equation that goes through $(2,3)$ and is parallel to $y = 3x + 7$. Put equation in standard form.

(x_1, y_1)

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

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

$y - 3 = 3x - 6$

$+3 \qquad +3$

$y = 3x - 3$

$-3x \quad -3x$

$-1\left[-3x + y = -3\right]$

$3x - y = 3$

(7) Give eq. in standard form that goes through (1,8) and is $\perp$ to $y = \frac{2}{3}x + 5$.

$m = \frac{2}{3} \therefore \perp m = -\frac{3}{2}$

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

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

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

$2y - 16 = -3x + 3$

$+3x \qquad +3x$

$3x + 2y - 16 = 3$

$+16 \quad +16$

$3x + 2y = 19$

$\sum$ ← sigma

summation

① $\sum_{n=3}^{5} 2n+1$

$n=3 \quad 2\cdot 3+1 = 7$

$n=4 \quad 2\cdot 4+1 = 9$

$n=5 \quad 2\cdot 5+1 = 11$

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② $\sum_{n=-5}^{-3} (n-2)^2$

$n=-5 \quad (-5-2)^2 = 49$

$n=-4 \quad (-4-2)^2 = 36$

$n=-3 \quad (-3-2)^2 = 25$

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③ $5! = 5\cdot 4\cdot 3\cdot 2\cdot 1 = 120$

④ $\frac{112!}{111!} = \frac{112\cdot \cancel{111}\cdot \cancel{110}\cdot \cancel{\dots}\cdot \cancel{2}\cdot 1}{\cancel{111}\cdot \cancel{110}\cdot \cancel{\dots}\cdot \cancel{2}\cdot 1}$

$\frac{112}{1} = 112$

⑤ $\frac{50!}{48!} = \frac{50 \cdot 49 \cdot 48 \cdots 2 \cdot 1}{48 \cdot 47 \cdots 2 \cdot 1}$

$= 2450$

⑥ $\frac{10!\,8!}{9!\,7!} = \frac{10 \cdot 9 \cdot 8 \cdots 2 \cdot 1}{9 \cdot 8 \cdots 2 \cdot 1} \cdot \frac{8 \cdot 7 \cdots 2 \cdot 1}{7 \cdot 6 \cdots 2 \cdot 1}$

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