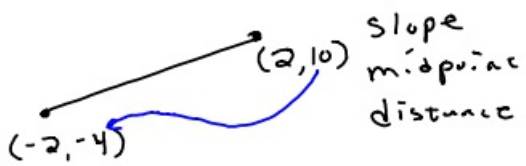
10-30-17 1st Trig



$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{10 - -4}{2 - -2} = \frac{14}{4} = \frac{7}{2}$$

$$\text{midpoint} = \left(\frac{-2+2}{2}, \frac{-4+10}{2}\right) = (0, 3)$$

$$\text{distance} = \sqrt{\Delta x^2 + \Delta y^2}$$
$$= \sqrt{4^2 + 14^2}$$
$$= \sqrt{16 + 196}$$
$$= \sqrt{212}$$
$$\approx 14.6$$

② What is the slope between $(n, 8)$ and $(n+6, 10)$?

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{10-8}{n+6-n} = \frac{2}{6} = \frac{1}{3}$$

③ Give the eq. in SIF that goes through $(-4, 10)$ (x_1, y_1) and has a slope of $\frac{1}{2}$.

$$y - y_1 = m(x - x_1)$$
$$y - 10 = \frac{1}{2}(x + 4)$$
$$y - 10 = \frac{1}{2}x + 2$$
$$+10 \qquad +10$$
$$y = \frac{1}{2}x + 12$$

(4) Give the eq. in SIF that goes through $(2,12)$ and is parallel to $y = \boxed{3}x - 1$.

(3 = m)

$$y - y_1 = m(x - x_1)$$
$$y - 12 = 3(x - 2)$$
$$y - 12 = 3x - 6$$
$$+12 \qquad +12$$
$$y = 3x + 6$$

(5) Put in Standard form.

$$y = \frac{1}{3}x - \frac{1}{5}$$
$$-\frac{1}{3}x \quad -\frac{1}{3}x$$
$$-15\left[-\frac{1}{3}x + y = -\frac{1}{5}\right]$$
$$5x - 15y = 3$$

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

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

(6) $\frac{12!}{10!} = \frac{12 \cdot 11 \cdot 10 \cdot 9 \cdot \ldots \cdot 2 \cdot 1}{10 \cdot 9 \cdot \ldots \cdot 2 \cdot 1}$

132

(7) $\sum_{n=-2}^{0} -4n-5$

$n=-2 \quad -4(-2)-5 = 3$

$n=-1 \quad -4(-1)-5 = -1$

$n=0 \quad -4(0)-5 = -5$

-3

(8) Give eq. in standard form that goes through (2, 4) and has a slope of 5.

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

$y-4 = 5(x-2)$

$y-4 = 5x-10$

$+4 \qquad +4$

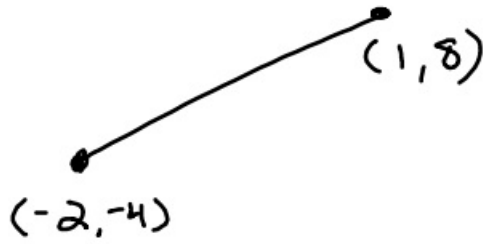
$y = 5x-6$

$-5x \quad -5x$

$-1[-5x+y=-6]$

$5x-y=6$

10-30-17 3rd Trig

① 

slope
midpoint
distance

$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{8 - -4}{1 - -2} = \frac{12}{3} = 4$$

$$\text{midpoint} = \left(\frac{-2+1}{2}, \frac{-4+8}{2}\right) = \left(\frac{-1}{2}, 2\right)$$

$$\text{distance} = \sqrt{\Delta x^2 + \Delta y^2}$$
$$= \sqrt{3^2 + 12^2}$$
$$= \sqrt{153}$$
$$\approx 12.4$$

② Give the equation in Slope intercept form that goes through $(2, -8)$ and has a slope of $\frac{1}{2}$.

$$y - y_1 = m(x - x_1)$$
$$y - -8 = \frac{1}{2}(x - 2)$$
$$x + 8 = \frac{1}{2}x - 1$$
$$-8 \qquad -8$$
$$y = \frac{1}{2}x - 9$$

③ $\sum_{n=1}^{3} -3n-5$

$n=1 \quad -3(1)-5 = -8$

$n=2 \quad -3(2)-5 = -11$

$n=3 \quad -3(3)-5 = -14$

-33

④ $\frac{12!}{10!} = \frac{12 \cdot 11 \cdot 10 \cdot 9 \cdots 2 \cdot 1}{10 \cdot 9 \cdots 2 \cdot 1}$

132

⑤ Put $y = \frac{1}{2}x + \frac{1}{5}$ in standard form.

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

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

$5x - 10y = -2$

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

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

⑥ Put $y = \frac{1}{3}x - \frac{2}{5}$ in standard form.

$-\frac{1}{3}x \quad -\frac{1}{3}x$

$-15\left[-\frac{1}{3}x + y = -\frac{2}{5}\right]$

$5x - 15y = 6$

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

$\frac{-15}{1} \cdot \frac{-2}{5} = \frac{30}{5} = 6$

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

$m = 4$

$\therefore$ parallel slope is 4.

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

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

$y - 2 = 4x + 24$

$+2 \quad +2$

$y = 4x + 26$

$-4x \quad -4x$

$-1[-4x + y = 26]$

$4x - y = -26$

(8) Give eq. in slope intercept form that goes through $(2,8)$ and is $\perp$ to $y = \frac{1}{2}x - 5$.

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

$y - y_1 = m(x - x_1)$ $\quad \therefore \perp m = -2$

$y - 8 = -2(x - 2)$

$y - 8 = -2x + 4$

$+8 \quad +8$

$y = -2x + 12$

10-30-17 4th Trig

① $\sum_{n=-4}^{-2} 3n-2$

$n=-4 \quad 3(-4)-2 = -14$

$n=-3 \quad 3(-3)-2 = -11$

$n=-2 \quad 3(-2)-2 = -8$

-33

② $\frac{12!}{10!} = \frac{12 \cdot 11 \cdot 10 \cdot 9 \cdots 2 \cdot 1}{10 \cdot 9 \cdots 2 \cdot 1}$

132

③ Put in Standard form

$y = \frac{1}{3}x + \frac{1}{5}$

$-\frac{1}{3}x \quad -\frac{1}{3}x$

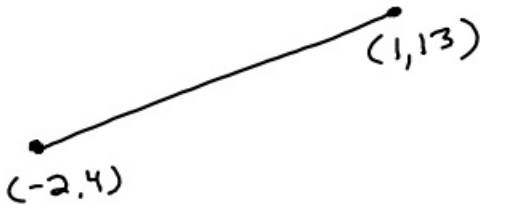
$-15\left[-\frac{1}{3}x + y = \frac{1}{5}\right]$

$5x - 15y = -3$

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

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

④



slope
midpoint
distance

$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{13-4}{1--2} = \frac{9}{3} = 3$

$\text{midpoint} = \left(\frac{-2+1}{2}, \frac{4+13}{2}\right) = \left(\frac{-1}{2}, 8\frac{1}{2}\right)$

$\text{distance} = \sqrt{\Delta x^2 + \Delta y^2}$

$= \sqrt{3^2 + 9^2}$

$= \sqrt{90}$

≈ 9.5

⑤ Give slope between $(n,3)$ and $(n+8,5)$

$m = \frac{\Delta y}{\Delta x} = \frac{5-3}{n+8-n} = \frac{2}{8} = \frac{1}{4}$

⑥ Give the equation in slope intercept form that goes through $(-2,6)$ and is parallel to $y = 5x-1$.

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

$y - 6 = 5(x+2)$

$y - 6 = 5x + 10$

$+6 \qquad +6$

$y = 5x + 16$

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

$m = \frac{1}{3} \therefore \perp m = -3$

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

$y - 5 = -3(x - 2)$

$y - 5 = -3x + 6$

$+5 \quad +5$

$y = -3x + 11$

$+3x \quad +3x$

$3x + y = 11$