11-21-13

4-1 Slope, Midpoint, Distance

Slope - FIRE

Rise with the wise (y)

AND

Run to the exit (x)

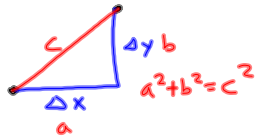
$slope = \frac{\Delta y}{\Delta x}$

Midpoint - $\frac{\text{Add x's together}}{2}$

$\frac{\text{Add y's together}}{2}$

Distance

$\sqrt{\Delta x^2 + \Delta y^2}$



$a^2 + b^2 = c^2$

(2,5) (6,8)

$slope = \frac{\Delta y}{\Delta x} = \frac{8-5}{6-2} = \frac{3}{4}$

$midpoint = \left(\frac{6+2}{2}, \frac{8+5}{2}\right)$

$(4, 6\frac{1}{2})$

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

$\sqrt{4^2 + 3^2}$

$\sqrt{16+9}$

$\sqrt{25}$

5

$y = 4x + 6$

parallel slope = 4

$\perp$ slope $= -\frac{1}{4}$

Give the equation in SIF that goes through (1, 8) and is perpendicular to $y = -\frac{1}{5}x + 7$.

$\perp m = 5$

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

$y - 8 = 5(x - 1)$

$y - 8 = 5x - 5$

$+8 \quad +8$

$y = 5x + 3$

Change it to standard form

$y = 5x + 3$

$-5x \quad -5x$

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

$5x - y = -3$

$$\sum_{n=2}^{4} 3n-10$$

$n=2$ $\quad 3\cdot 2-10=-4$

$n=3$ $\quad 3\cdot 3-10=-1$

$n=4$ $\quad 3\cdot 4-10=2$

$$-3$$

$$\frac{96!}{95!}=\frac{96\cdot 95\cdot 94\cdots 2\cdot 1}{95\cdot 94\cdots 2\cdot 1}$$

$$=96$$

11-21-13

4th Trig

Slope, midpoint, Distance

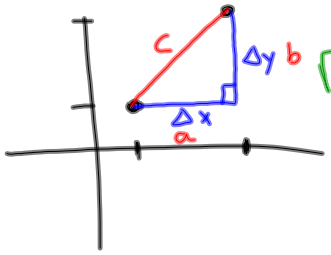
FIRE

Slope — Rise with the wise(y) AND Run to the exit(x)

$slope = \frac{\Delta y}{\Delta x}$

$midpoint = \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

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



$a^2+b^2=c^2$

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

(2,1) and (6,5)

$slope = \frac{\Delta y}{\Delta x} = \frac{5-1}{6-2} = \frac{4}{4} = 1$

$midpoint = \left(\frac{2+6}{2}, \frac{1+5}{2}\right) = (4,3)$

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

$\sqrt{4^2+4^2}$

$\sqrt{16+16}$

$\sqrt{32} = 4\sqrt{2}$

≈ 5.6

$y=5x+2$

parallel slope $= 5$

$\perp$ slope $= -\frac{1}{5}$

Give the equation in SIF that goes through $(2,3)$ and is perpendicular to $y = -\frac{1}{4}x + 3$

$\perp$ $m = 4$

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

$y - 3 = 4(x - 2)$

$y - 3 = 4x - 8$

$+3 \quad +3$

$y = 4x - 5$

Change answer to standard form.

$y = 4x - 5$

$-4x \quad -4x$

$-1[-4x + y = -5]$

$4x - y = 5$

$$\sum_{n=1}^{3} 8n - 20$$

$n = 1 \quad 8(1) - 20 = -12$

$n = 2 \quad 8(2) - 20 = -4$

$n = 3 \quad 8(3) - 20 = 4$

-12

$$\frac{90!}{89!} = \frac{90 \cdot 89 \cdot 88 \cdots 2 \cdot 1}{89 \cdot 88 \cdots 2 \cdot 1}$$

90

$$\frac{6!}{3!\,2!} = \frac{6 \cdot 5 \cdot \cancel{4}^{2} \cdot \cancel{3 \cdot 2 \cdot 1}}{\cancel{3 \cdot 2 \cdot 1} \quad \cancel{2}_{1} \cdot 1}$$

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