Objective CHECK DEAL OR NO DEAL!

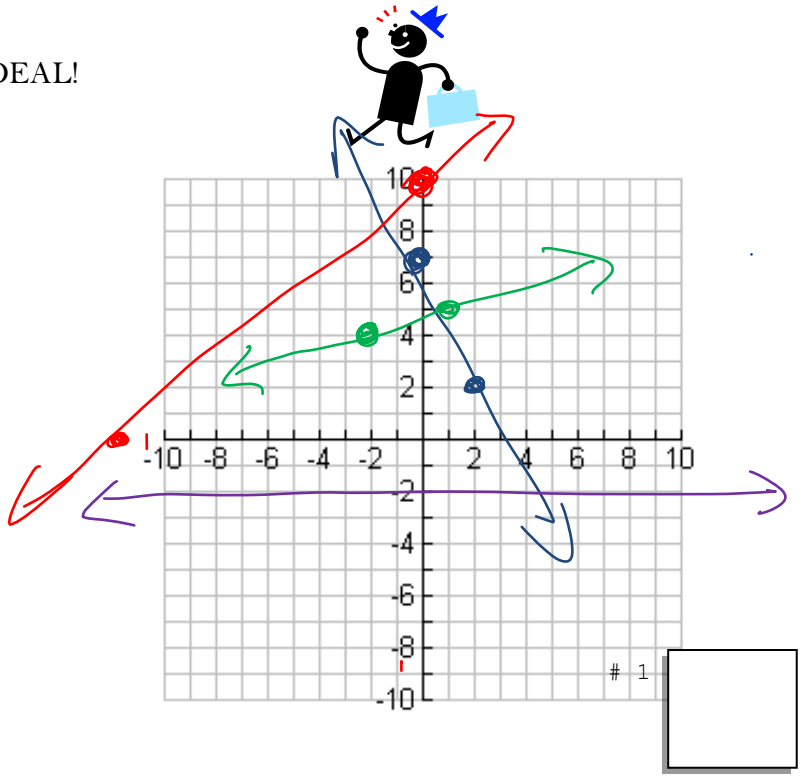
Objective 1: Graph a line from any form

a. Graph $y=-\frac{5}{2}x+7$

b. Graph $5x-6y=-60$ (-12,0) (0,10)

c. Graph $y-4=\frac{1}{3}(x+2)$ (-2,4) $m=\frac{1}{3}$

d. y = -2



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Objective 2: Write the equation of a line

$m=\frac{8}{-10}=\frac{-4}{5}$

a. Write the equation of the line through (-2,3) and (8,-5).

Solve for x and y:

$y+5=-\frac{4}{5}(x-8)$ $m=\frac{8}{-10}=-\frac{4}{5}$ $y-3=-\frac{4}{5}(x+2)$ (5,-1)

b. Write the equation of the line perpendicular to $5x-6y=-60$ and through (-4,17).

c. Write the equation of the line parallel to $y-4=\frac{1}{3}(x+2)$ and through the x-intercept of $5x-6y=-60$.

$y=\frac{1}{3}(x+12$

Objective 3: Solve a system that has multiple solutions

Solve for x and y:

$\begin{cases}(x-3)^2+(y+5)^2=49\\ y=3x-4\end{cases}$

$(x-3)^2+(3x+1)^2=49$

$x^2-6x+9+9x^2+6x+1=49$

$10x^2=39$

$x^2=3.9$

$x=\pm\sqrt{3.9}$

Solutions

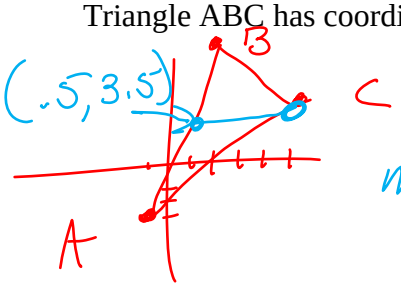
$(\sqrt{3.9}, 3\sqrt{3.9}-4)$

$(-\sqrt{3.9}, -3\sqrt{3.9}-4)$

2-3

midpoint

Objective 4: Write an equation of a median in a triangle:
Triangle ABC has coordinates A(-1,-3), B(2,10), and C(5,4). Write an equation for the median from C.

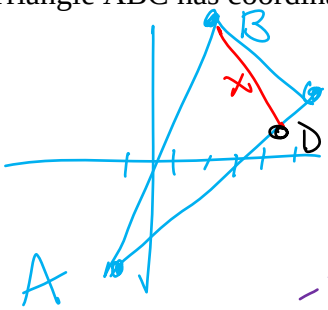


point

$m = \frac{4-3.5}{5-.5} = \frac{.5}{4.5} = \frac{1}{9}$

$y-4=\frac{1}{9}(x-5)$

Objective 5: Find the length of an altitude of a triangle
Triangle ABC has coordinates A(1,-8), B(2,10), and C(5,4). Find the length of the altitude from B.



Way 1

Line AC $\Rightarrow y-4=3(x-4)$

Distance B is from Line $-3x+y+8=0$ point $(2,10)$

$\frac{|-3(2)+10+8|}{\sqrt{(-3)^2+(1)^2}}$

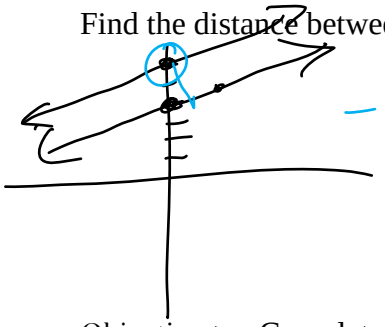
$\frac{12}{\sqrt{10}} = \frac{6\sqrt{10}}{5}$

Way 2
Find point D and use Distance Formula!

4-5

Objective 6: Compute the distance between two lines

Find the distance between $y=\frac{1}{3}x+4$ and $y=\frac{1}{3}x+6$.



$-\frac{1}{3}x+y-4=0$

$(0,6)$

$d = \frac{|-\frac{1}{3}(0)+6-4|}{\sqrt{(\frac{1}{3})^2+1^2}}$

$\frac{2}{\frac{\sqrt{10}}{3}} = \frac{3\sqrt{10}}{5}$

Objective 7: Complete the square to write the equation of a circle in standard form
Write the standard form equation of the circle $x^2 + y^2 - 16x - 6y = 62$ and identify the center and radius.

$x^2-16x+64+y^2-6y+9 = 62+64+9$

$(x-8)^2+(y-3)^2 = 135$

Center: $(8,3)$

Radius: $\sqrt{135}$

$3\sqrt{15}$

6-7

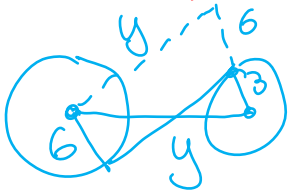
Challenge 8: Find the length of the common internal or external tangents

Find the length of the common external tangent between the two circles $(x-4)^2+(y+3)^2=36$ and $(x+1)^2+(y-5)^2=9$.

$(-1,5)$ $r=3$ $(4,-3)$ $r=6$

distance between Centers: $\sqrt{89}$

$x=4\sqrt{5}$



$y=2\sqrt{2}$

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