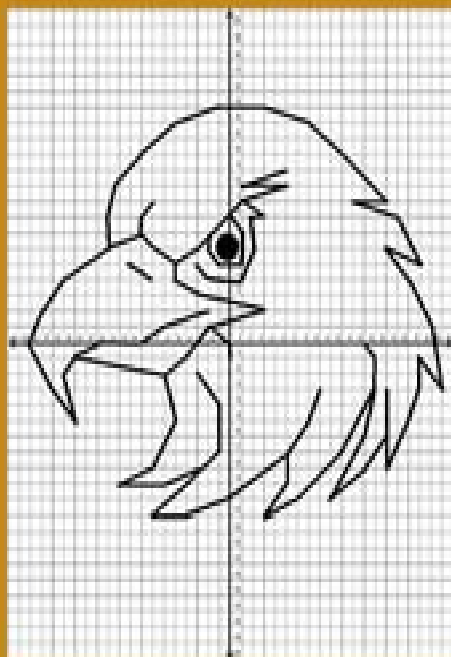
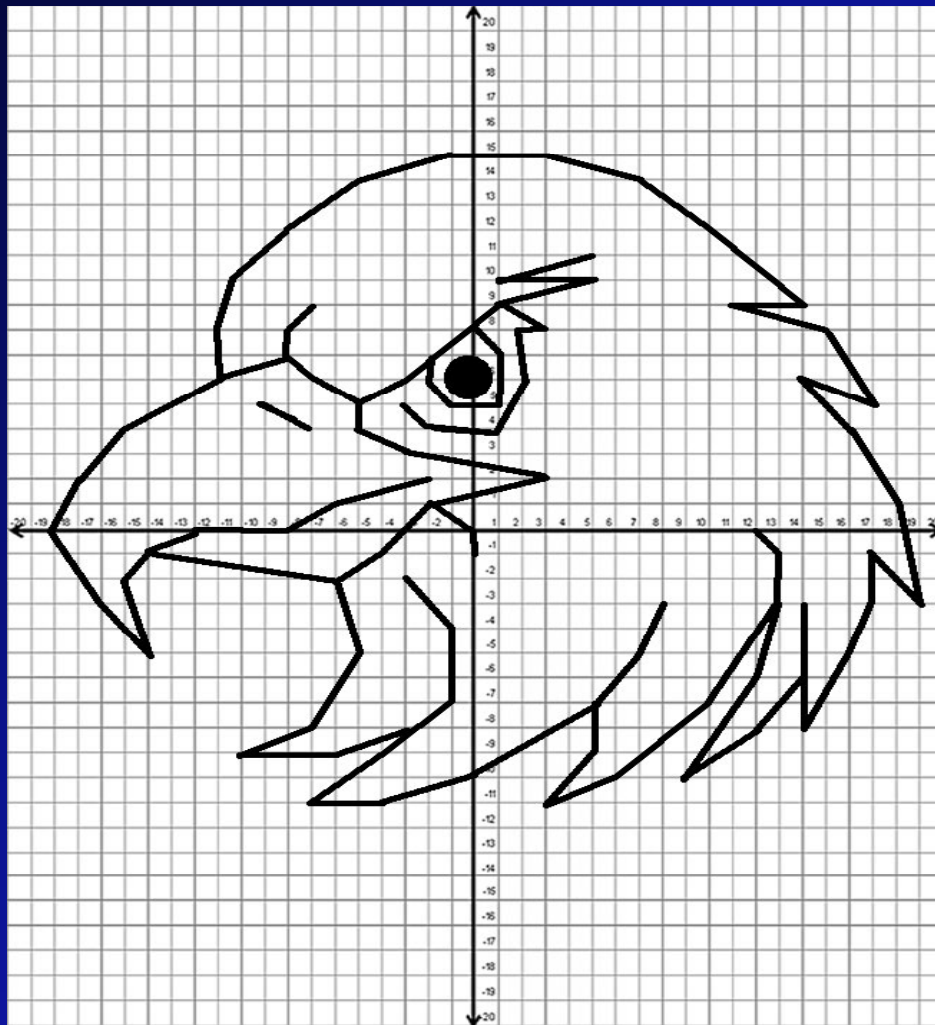


GRAPHIX



Eagle

GRAPH X



1112 – 3 Eagle

Ω	= 12
\uparrow	= -9
@	= 4
\uparrow	= 2
Δ	= 0
ϕ	= 15
$\textcircled{\phi}$	= 11
Σ	= 19



WHO: Designed for students in upper elementary, middle school and high school.

WHAT: GraphX coordinate graphing activity that involves solving math problems and using a coordinate graph to create a picture.

WHEN: Can be used in conjunction with any algebra or geometry unit as a review or warmup activity. Can also be used as the main lesson in a coordinate graphing unit.

WHERE: Requires a pen or pencil.

WHY: Aligned with the problem-solving Common Core Math standards and helps build perseverance with math.



GRAPHIX

Using graph paper and going from top to bottom of each column in order, plot the points and connect them until you reach "STOP." Pick up your pencil and go to the next "START" to create the next line in the picture. Continue until you have plotted all of the points.

START	(14, -8)	(5, -9)	(-2, 1)	(-12, 0)	(-7, 4)	(-3, 5)
(-11, 6)	(14, -3)	(5, -7)	(-4, -1)	(-14, -1)	STOP	STOP
(-11, 8)	STOP	(7, -5)	(-6, -2)	(-15, -2)		
(-10, 10)		(8, -3)	(-5, -5)	(-14, -5)	START	START
(-8, 12)	START	STOP	(-7, -8)	(-16, -3)	(-8, 7)	(1, 9)
(-5, 14)	(14, -6)		(-10, -9)	(-18, 0)	(-8, 8)	(-2, 7)
(-1, 15)	(12, -8)	START	(-6, -9)	(-17, 2)	(-7, 9)	(-3, 6)
(3, 15)	(9, -10)	(5, -7)	(-3, -8)	(-15, 4)	STOP	(-5, 5)
(7, 14)	(12, -6)	(0, -10)	STOP	(-11, 6)		STOP
(14, 9)	(13, -3)	(-4, -11)		(-8, 7)	START	
(11, 9)	(13, -1)	(-7, -11)	START	(-5, 5)	(5, 11)	START
(15, 8)	(12, 0)	(-1, -7)	(-6, -2)	(-5, 4)	(1, 10)	(0, 9)
(17, 5)	STOP	(-1, -4)	(-14, -1)	(-3, 3)	(5, 10)	(1, 7)
(14, 6)		(-3, -2)	STOP	(3, 2)	(1, 9)	(1, 5)
(16, 4)	START	STOP		(-2, 1)	(3, 8)	(-1, 5)
(18, 1)	(13, -3)		START	STOP	(2, 8)	(-2, 6)
(19, -3)	(10, -7)	START	(-2, 2)		(2, 6)	(-2, 7)
(17, -1)	(6, -10)	(0, -1)	(-6, 1)	START	(1, 4)	STOP
(17, -3)	(3, -11)	(0, 0)	(-8, 0)	(-9, 5)	(-2, 4)	



GRAPHIX

Solve:

Ω	$48 / 4 = \underline{\hspace{2cm}}$	Δ	$-5 + 5 = \underline{\hspace{2cm}}$
\uparrow	$-54 / 6 = \underline{\hspace{2cm}}$	ϕ	$45 / 3 = \underline{\hspace{2cm}}$
@	$64 / 16 = \underline{\hspace{2cm}}$	\textcircled{P}	$121 / 11 = \underline{\hspace{2cm}}$
\uparrow	$60 / 30 = \underline{\hspace{2cm}}$	Σ	$95 / 5 = \underline{\hspace{2cm}}$

Solve the above problems to decode the symbols used below. Using graph paper and going from top to bottom of each column in order, plot the points and connect them until you reach "STOP." Pick up your pencil and go to the next "START" to create the next line in the picture. Continue until you have plotted all of the points.

START	(14, -8)	(5, \uparrow)	(-2, 1)	(-12, Δ)	(-7, @)	(-3, 5)
(-11, 6)	(14, -3)	(5, -7)	(-4, -1)	(-14, -1)	STOP	STOP
(-11, 8)	STOP	(7, -5)	(-6, -2)	(-15, -2)		
(-10, 10)		(8, -3)	(-5, -5)	(-14, -5)	START	START
(-8, Ω)	START	STOP	(-7, -8)	(-16, -3)	(-8, 7)	(1, 9)
(-5, 14)	(14, -6)		(-10, \uparrow)	(-18, Δ)	(-8, 8)	(-2, 7)
(-1, ϕ)	(Ω , -8)	START	(-6, \uparrow)	(-17, \uparrow)	(-7, 9)	(-3, 6)
(3, ϕ)	(9, -10)	(5, -7)	(-3, -8)	(-15, @)	STOP	(-5, 5)
(7, 14)	(Ω , -6)	(Δ , -10)	STOP	(-11, 6)		STOP
(14, 9)	(13, -3)	(-4, -11)		(-8, 7)	START	
(\textcircled{P} , 9)	(13, -1)	(-7, -11)	START	(-5, 5)	(5, \textcircled{P})	START
(ϕ , 8)	(12, Δ)	(-1, -7)	(-6, -2)	(-5, @)	(1, 10)	(0, 9)
(17, 5)	STOP	(-1, -4)	(-14, -1)	(-3, 3)	(5, 10)	(1, 7)
(14, 6)		(-3, -2)	STOP	(3, \uparrow)	(1, 9)	(1, 5)
(16, @)	START	STOP		(-2, 1)	(3, 8)	(-1, 5)
(18, 1)	(13, -3)		START	STOP	(\uparrow , 8)	(-2, 6)
(Σ , -3)	(10, -7)	START	(-2, \uparrow)		(\uparrow , 6)	(-2, 7)
(17, -1)	(6, -10)	(Δ , -1)	(-6, 1)	START	(1, @)	STOP
(17, -3)	(3, -11)	(Δ , Δ)	(-8, Δ)	(\uparrow , 5)	(-2, @)	



GRAPHIX

Identify the degree of each polynomial:

Ω	$3x^2y^4z^6 + 5 =$ _____	Δ	$7 =$ _____
\uparrow	no negative degrees = <u>-9</u>	Φ	$-5x^3y^{10}z^2 + z =$ _____
$@$	$11xy^3 + 8y^2 =$ _____	\textcircled{P}	$2a^7b^4 + a^6b^2 =$ _____
\uparrow	$x^2 + 5x =$ _____	Σ	$6w^4x^3y^5z^7 + 2x =$ _____

Solve the above problems to decode the symbols used below. Using graph paper and going from top to bottom of each column in order, plot the points and connect them until you reach "STOP." Pick up your pencil and go to the next "START" to create the next line in the picture. Continue until you have plotted all of the points.

START	(14, -8)	(5, \uparrow)	(-2, 1)	(-12, Δ)	(-7, @)	(-3, 5)
(-11, 6)	(14, -3)	(5, -7)	(-4, -1)	(-14, -1)	STOP	STOP
(-11, 8)	STOP	(7, -5)	(-6, -2)	(-15, -2)		
(-10, 10)		(8, -3)	(-5, -5)	(-14, -5)	START	START
(-8, Ω)	START	STOP	(-7, -8)	(-16, -3)	(-8, 7)	(1, 9)
(-5, 14)	(14, -6)		(-10, \uparrow)	(-18, Δ)	(-8, 8)	(-2, 7)
(-1, Φ)	(Ω , -8)	START	(-6, \uparrow)	(-17, \uparrow)	(-7, 9)	(-3, 6)
(3, Φ)	(9, -10)	(5, -7)	(-3, -8)	(-15, @)	STOP	(-5, 5)
(7, 14)	(Ω , -6)	(Δ , -10)	STOP	(-11, 6)		STOP
(14, 9)	(13, -3)	(-4, -11)		(-8, 7)	START	
(\textcircled{P} , 9)	(13, -1)	(-7, -11)	START	(-5, 5)	(5, \textcircled{P})	START
(Φ , 8)	(12, Δ)	(-1, -7)	(-6, -2)	(-5, @)	(1, 10)	(0, 9)
(17, 5)	STOP	(-1, -4)	(-14, -1)	(-3, 3)	(5, 10)	(1, 7)
(14, 6)		(-3, -2)	STOP	(3, \uparrow)	(1, 9)	(1, 5)
(16, @)	START	STOP		(-2, 1)	(3, 8)	(-1, 5)
(18, 1)	(13, -3)		START	STOP	(\uparrow , 8)	(-2, 6)
(Σ , -3)	(10, -7)	START	(-2, \uparrow)		(\uparrow , 6)	(-2, 7)
(17, -1)	(6, -10)	(Δ , -1)	(-6, 1)	START	(1, @)	STOP
(17, -3)	(3, -11)	(Δ , Δ)	(-8, Δ)	(\uparrow , 5)	(-2, @)	



GRAPHIX

Solve:

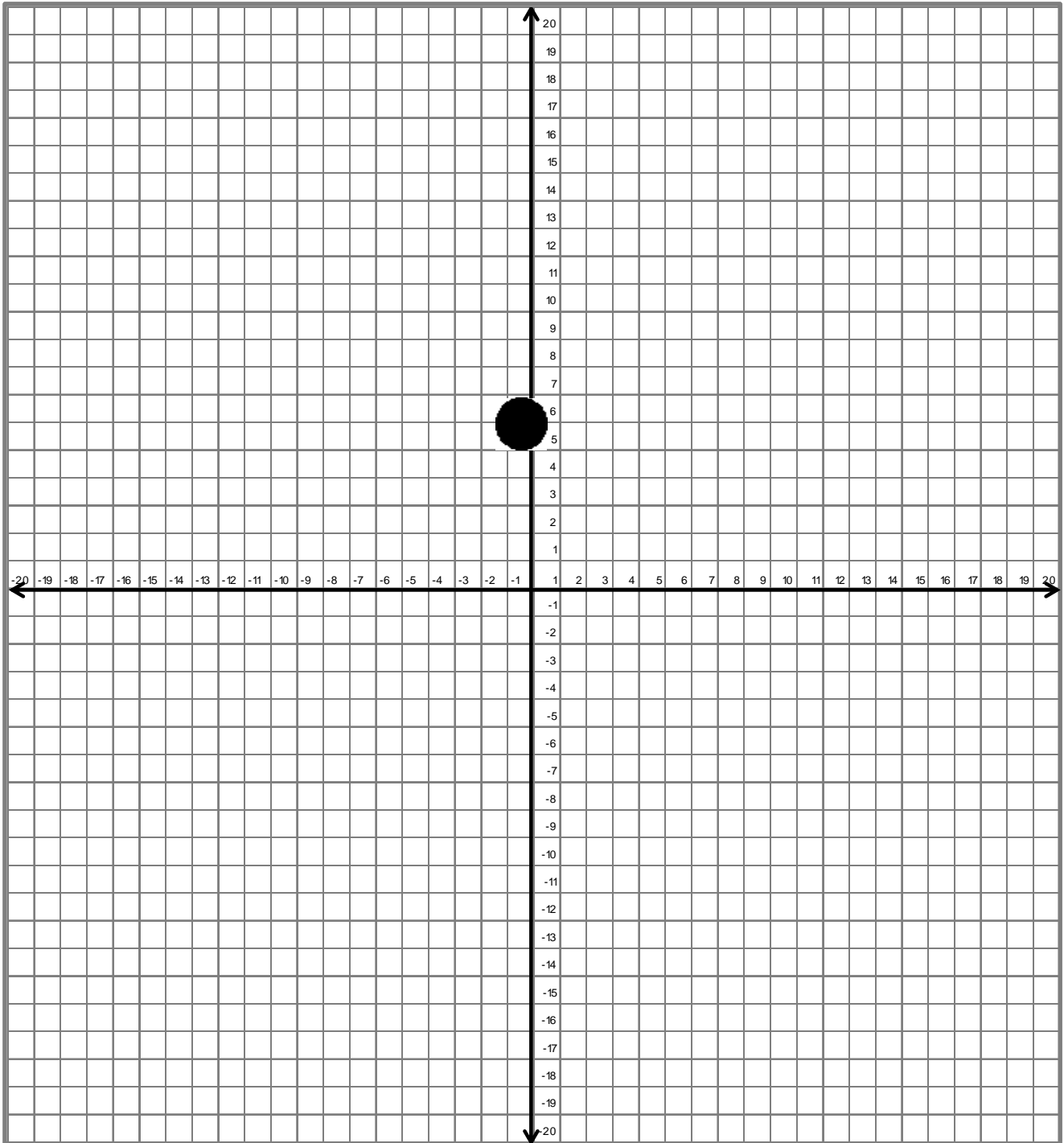
Ω	Δ
\uparrow	ϕ
@	\textcircled{P}
\uparrow	Σ

Solve the above problems to decode the symbols used below. Using graph paper and going from top to bottom of each column in order, plot the points and connect them until you reach "STOP." Pick up your pencil and go to the next "START" to create the next line in the picture. Continue until you have plotted all of the points.

START	(14, -8)	(5, \uparrow)	(-2, 1)	(-12, Δ)	(-7, @)	(-3, 5)
(-11, 6)	(14, -3)	(5, -7)	(-4, -1)	(-14, -1)	STOP	STOP
(-11, 8)	STOP	(7, -5)	(-6, -2)	(-15, -2)		
(-10, 10)		(8, -3)	(-5, -5)	(-14, -5)	START	START
(-8, Ω)	START	STOP	(-7, -8)	(-16, -3)	(-8, 7)	(1, 9)
(-5, 14)	(14, -6)		(-10, \uparrow)	(-18, Δ)	(-8, 8)	(-2, 7)
(-1, ϕ)	(Ω , -8)	START	(-6, \uparrow)	(-17, \uparrow)	(-7, 9)	(-3, 6)
(3, ϕ)	(9, -10)	(5, -7)	(-3, -8)	(-15, @)	STOP	(-5, 5)
(7, 14)	(Ω , -6)	(Δ , -10)	STOP	(-11, 6)		STOP
(14, 9)	(13, -3)	(-4, -11)		(-8, 7)	START	
(\textcircled{P} , 9)	(13, -1)	(-7, -11)	START	(-5, 5)	(5, \textcircled{P})	START
(ϕ , 8)	(12, Δ)	(-1, -7)	(-6, -2)	(-5, @)	(1, 10)	(0, 9)
(17, 5)	STOP	(-1, -4)	(-14, -1)	(-3, 3)	(5, 10)	(1, 7)
(14, 6)		(-3, -2)	STOP	(3, \uparrow)	(1, 9)	(1, 5)
(16, @)	START	STOP		(-2, 1)	(3, 8)	(-1, 5)
(18, 1)	(13, -3)		START	STOP	(\uparrow , 8)	(-2, 6)
(Σ , -3)	(10, -7)	START	(-2, \uparrow)		(\uparrow , 6)	(-2, 7)
(17, -1)	(6, -10)	(Δ , -1)	(-6, 1)	START	(1, @)	STOP
(17, -3)	(3, -11)	(Δ , Δ)	(-8, Δ)	(\uparrow , 5)	(-2, @)	

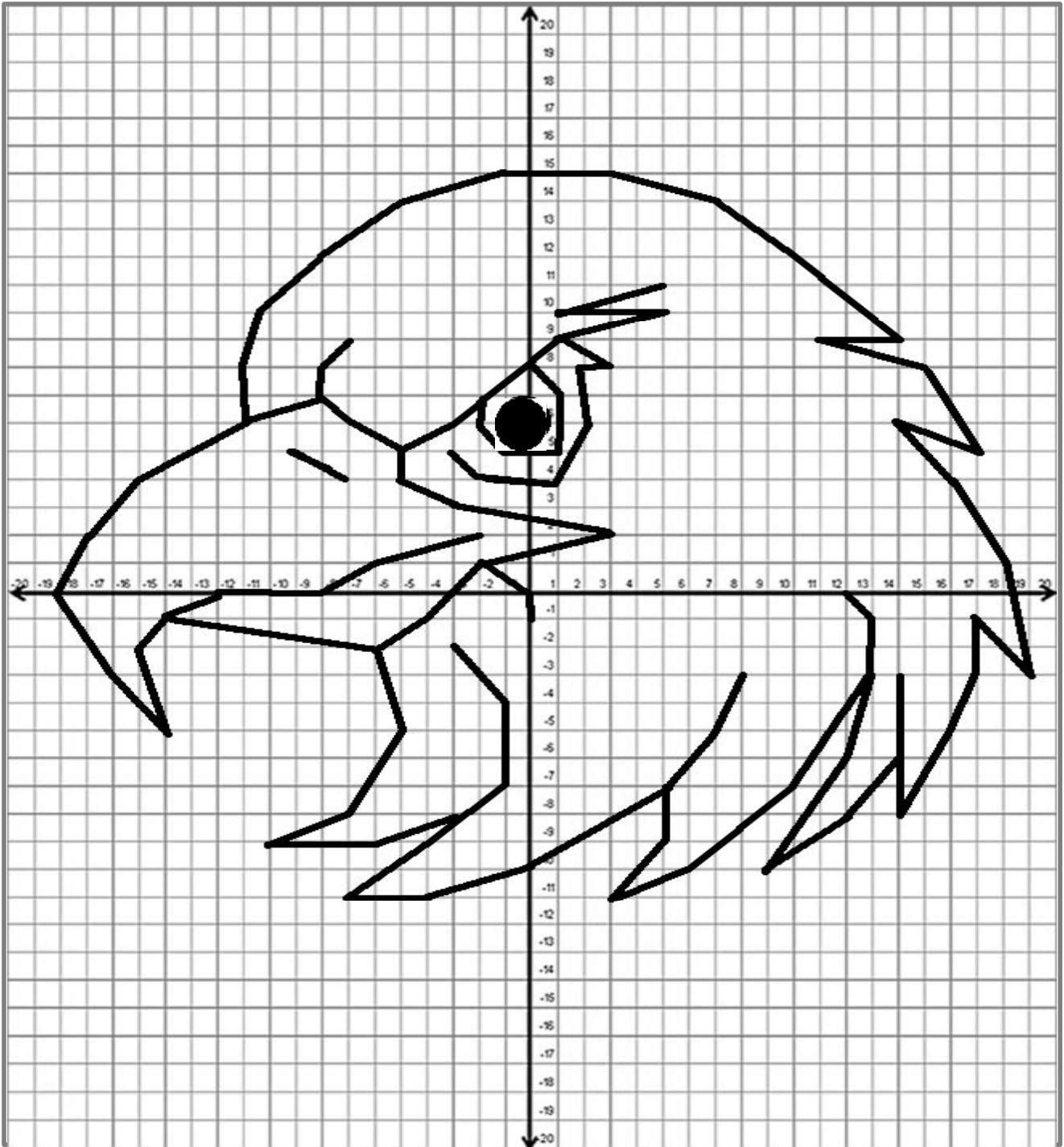


GRAPHX





GRAPHX



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Also, take a look at my Pinterest site:

<http://www.pinterest.com/drsigma/math-explorations/>

The name "Dr. Sigma" is in honor of my late father, Dr. Gary C. Ramseyer, a statistics professor at Illinois State University who often performed in class as "Dr. Sigma." His website, devoted to the humor in statistics, is located at <http://my.ilstu.edu/~gramsey/gallery.html>.