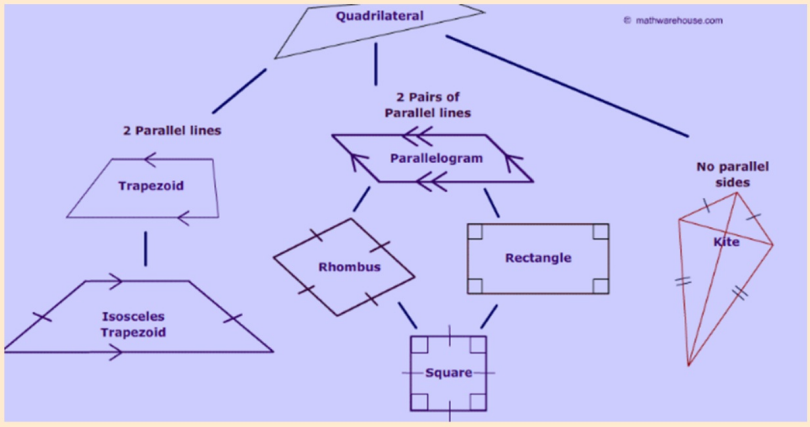
Welcome Back MYP Math 9!

	Assignment Effort Grade (Circle One)	Comments (What was interesting or challenging?)
Monday Date: 10/23 Topic: Create your own problem!	0 1 2	I'm almost done!
Tuesday Date: 10/24 Topic: Finished create your own problem	0 1 2	
Wednesday Date: 10/25 Topic: Parallel/Orthogonal Vectors	0 1 2	
Thursday Date: _____ Topic: _____	0 1 2	
Friday Date: _____ Topic: _____	0 1 2	

Class Plan:

1. Warm-up
2. Quadrilateral Vectors
3. Practice

2.5 Jokes!



Warm Up

$\vec{a} = \begin{pmatrix} 2 \\ -3 \end{pmatrix}$, $\vec{b} = \begin{pmatrix} 4 \\ -6 \end{pmatrix}$, $\vec{c} = \begin{pmatrix} -3 \\ -2 \end{pmatrix}$, and $\vec{d} = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$

(a) Find $\vec{a} \cdot \left(\vec{b} + \vec{c} \right)$.

(b) Find $\vec{a} \cdot \vec{b} \cdot \vec{c}$.

(c) Find $\vec{d} \cdot \vec{d}$.

(d) Find $2\vec{d} \cdot 3\vec{c}$.

e Find $6\left(\vec{d} \cdot \vec{c} \right)$.

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(c) Find $\vec{d} \cdot \vec{d}$.

(d) Find $2\vec{d} \cdot 3\vec{c}$.

(d) Find $6\left(\vec{d} \cdot \vec{c} \right)$.

$\begin{pmatrix} 2 \\ -3 \end{pmatrix} \cdot \begin{pmatrix} 1 \\ -8 \end{pmatrix}$

$2(1) + (-3)(-8)$

$= 2 + 24$ $= \begin{pmatrix} 2 \\ 24 \end{pmatrix}$

$= \boxed{26}$

Warm Up

$\vec{a} = \begin{pmatrix} 2 \\ -3 \end{pmatrix}, \vec{b} = \begin{pmatrix} 4 \\ -6 \end{pmatrix}, \vec{c} = \begin{pmatrix} -3 \\ -2 \end{pmatrix}$, and $\vec{d} = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$

(a) Find $\vec{a} \cdot \left(\vec{b} + \vec{c} \right)$.

(b) Find $\vec{a} \cdot \vec{b} \cdot \vec{c}$. ← Doesn't work!

(c) Find $\vec{d} \cdot \vec{d}$.

(d) Find $2\vec{d} \cdot 3\vec{c}$.

(d) Find $6\left(\vec{d} \cdot \vec{c} \right)$.

Warm Up

$\vec{a} = \begin{pmatrix} 2 \\ -3 \end{pmatrix}$, $\vec{b} = \begin{pmatrix} 4 \\ -6 \end{pmatrix}$, $\vec{c} = \begin{pmatrix} -3 \\ -2 \end{pmatrix}$, and $\vec{d} = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$

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(c) Find $\vec{d} \cdot \vec{d}$.

(d) Find $2\vec{d} \cdot 3\vec{c}$.

(d) Find $6\left(\vec{d} \cdot \vec{c} \right)$.

$\begin{pmatrix} 3 \\ 2 \end{pmatrix} \cdot \begin{pmatrix} 3 \\ 2 \end{pmatrix} =$

$9 + 4 = 13$

$|\vec{d}| = \sqrt{3^2 + 2^2} = \sqrt{13}$

$\vec{d} \cdot \vec{d} = |\vec{d}|^2$

Warm Up

$\vec{a} = \begin{pmatrix} 2 \\ -3 \end{pmatrix}, \vec{b} = \begin{pmatrix} 4 \\ -6 \end{pmatrix}, \vec{c} = \begin{pmatrix} -3 \\ -2 \end{pmatrix}$, and $\vec{d} = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$

(a) Find $\vec{a} \cdot \left(\vec{b} + \vec{c} \right)$.

(b) Find $\vec{a} \cdot \vec{b} \cdot \vec{c}$.

(c) Find $\vec{d} \cdot \vec{d}$.

(d) Find $2\vec{d} \cdot 3\vec{c}$.

(e) Find $6\left(\vec{d} \cdot \vec{c} \right)$.

$2\begin{pmatrix} 3 \\ 2 \end{pmatrix} \cdot 3\begin{pmatrix} -3 \\ -2 \end{pmatrix}$

$\begin{pmatrix} 6 \\ 4 \end{pmatrix} \cdot \begin{pmatrix} -9 \\ -6 \end{pmatrix} = -54 + -24$

$= -78$

$6\left(\begin{pmatrix} 3 \\ 2 \end{pmatrix} \cdot \begin{pmatrix} -3 \\ -2 \end{pmatrix} \right) =$

$6(-9 + -4) = 6 \cdot -13$

$= -78$

Warm Up

$\vec{a} = \begin{pmatrix} 2 \\ -3 \end{pmatrix}, \vec{b} = \begin{pmatrix} 4 \\ -6 \end{pmatrix}, \vec{c} = \begin{pmatrix} -3 \\ -2 \end{pmatrix}$, and $\vec{d} = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$

(a) Find $\vec{a} \cdot \left(\vec{b} + \vec{c} \right)$.

(b) Find $\vec{a} \cdot \vec{b} \cdot \vec{c}$.

(c) Find $\vec{d} \cdot \vec{d}$.

(d) Find $2\vec{d} \cdot 3\vec{c}$.

(d) Find $6\left(\vec{d} \cdot \vec{c} \right)$.

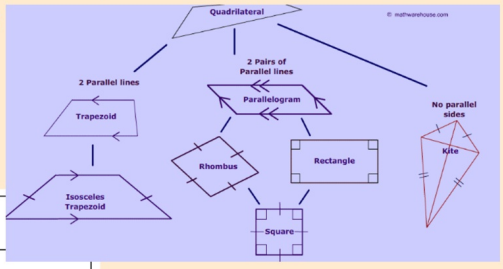
$6\left(3(-3) + 2(-2)\right)$

$= 6(-9 - 4)$

$= 6(-13) = \boxed{-78}$

Vector Quadrilaterals:

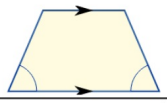
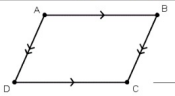
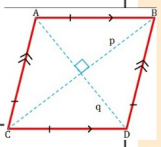
Use the images below to fill in the blanks & draw an image!



Quadrilateral (4 sided figure)	Definition	Image
Trapezoid	One pair of _____.	
Parallelogram	Two pairs of _____.	
Rhombus	Parallelogram with four _____.	
Rectangle	Parallelogram with four _____.	
Square	Parallelogram with four _____ and four _____.	
Kite	Two ~~pairs~~ distinct pairs of _____.	

(4 min)

Classifying Quadrilaterals (4 sided Polygon)

Quadrilateral (4 sided figure)	Definition	Image
Trapezoid	One pair of parallel sides	
Parallelogram	Two pairs of parallel sides.	
Rhombus	Parallelogram with four congruent sides	
Rectangle	Parallelogram with four right angles.	
Square	Parallelogram with four congruent sides and four right angles.	
Kite	Two pairs distinct pairs of congruent sides.	

Practice: Classifying Quadrilaterals

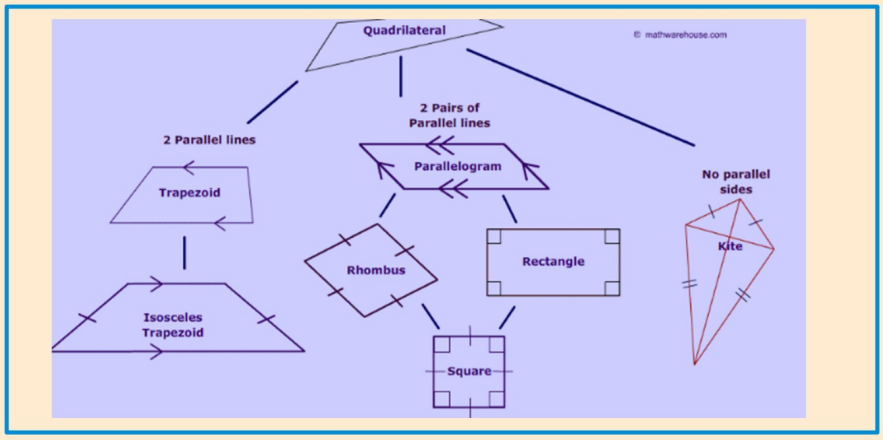
Using parallel/perpendicular lines & length

***Graph vertices of the quadrilateral

***Solve for slopes/lengths of sides

***What type of quadrilateral is it???

SOLUTIONS ONLINE!

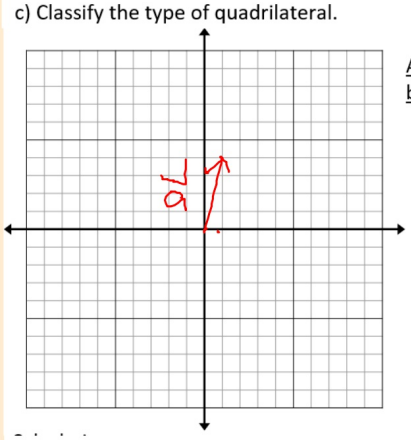


Version A

a) Graph vectors ***A+B+C+D*** when $\vec{a}=\begin{pmatrix}1\\4\end{pmatrix},\vec{b}=\begin{pmatrix}7\\1\end{pmatrix},\vec{c}=\begin{pmatrix}-1\\-4\end{pmatrix},\vec{d}=\begin{pmatrix}-7\\-1\end{pmatrix}$ on the graph below.

b) Identify any properties of the quadrilateral using magnitudes (distances) and parallel/perpendicular vectors.

c) Classify the type of quadrilateral.



<u>After making calculations, identify properties below:</u>

<u>Quadrilateral</u>

Parallel or Perpendicular Vectors:

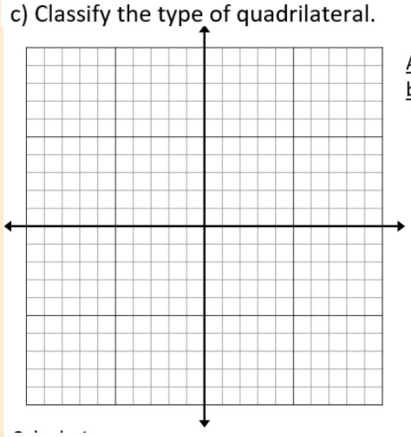
Magnitudes (lengths):

Version B

a) Graph vectors ***A+B+C+D*** when $\vec{a}=\begin{pmatrix}3\\2\end{pmatrix},\vec{b}=\begin{pmatrix}4\\-6\end{pmatrix},\vec{c}=\begin{pmatrix}-3\\-2\end{pmatrix},\vec{d}=\begin{pmatrix}-4\\6\end{pmatrix}$ on the graph below.

b) Identify any properties of the quadrilateral using magnitudes (distances) and parallel/perpendicular vectors.

c) Classify the type of quadrilateral.



After making calculations, identify properties below:

Quadrilateral

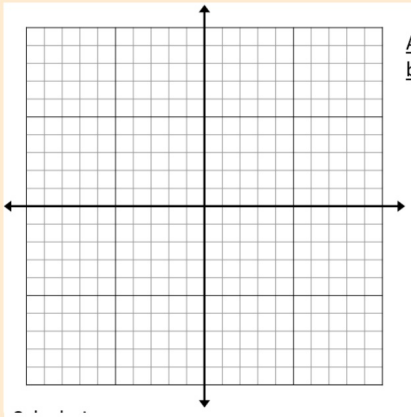
Parallel or Perpendicular Vectors:

Magnitudes (lengths):

Version C

a) Graph vectors ***A+B+C+D*** when $\vec{a}=\begin{pmatrix}-2\\3\end{pmatrix},\vec{b}=\begin{pmatrix}3\\2\end{pmatrix},\vec{c}=\begin{pmatrix}2\\-3\end{pmatrix},\vec{d}=\begin{pmatrix}-3\\-2\end{pmatrix}$ on the graph below.

b) Identify any properties of the quadrilateral using magnitudes (distances) and parallel/perpendicular vectors.
c) Classify the type of quadrilateral.



After making calculations, identify properties below:

Quadrilateral

Parallel or Perpendicular Vectors:

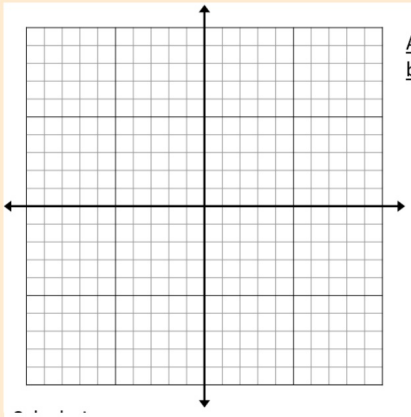
Magnitudes (lengths):

Version D

a) Graph vectors ***A+B+C+D*** when $\vec{a}=\begin{pmatrix}-2\\3\end{pmatrix},\vec{b}=\begin{pmatrix}2\\3\end{pmatrix},\vec{c}=\begin{pmatrix}2\\-3\end{pmatrix},\vec{d}=\begin{pmatrix}-2\\-3\end{pmatrix}$ on the graph below.

b) Identify any properties of the quadrilateral using magnitudes (distances) and parallel/perpendicular vectors.

c) Classify the type of quadrilateral.



After making calculations, identify properties below:

Quadrilateral

Parallel or Perpendicular Vectors:

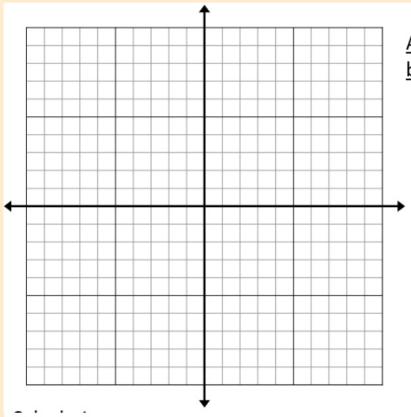
Magnitudes (lengths):

Version E

a) Graph vectors ***A+B+C+D*** when $\vec{a}=\begin{pmatrix}-3\\6\end{pmatrix},\vec{b}=\begin{pmatrix}6\\-3\end{pmatrix},\vec{c}=\begin{pmatrix}1\\-4\end{pmatrix},\vec{d}=\begin{pmatrix}-4\\1\end{pmatrix}$ on the graph below.

b) Identify any properties of the quadrilateral using magnitudes (distances) and parallel/perpendicular vectors.

c) Classify the type of quadrilateral.



After making calculations, identify properties below:

Quadrilateral

Parallel or Perpendicular Vectors:

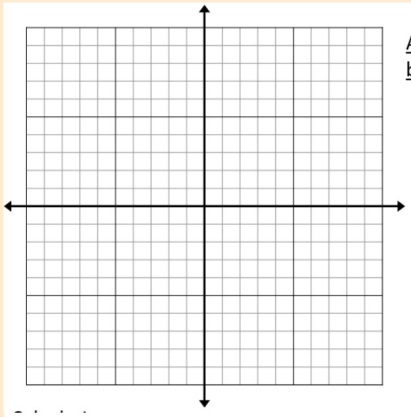
Magnitudes (lengths):

Version F

a) Graph vectors ***A+B+C+D*** when $\vec{a}=\begin{pmatrix}-1\\3\end{pmatrix}, \vec{b}=\begin{pmatrix}2\\2\end{pmatrix}, \vec{c}=\begin{pmatrix}3\\-1\end{pmatrix}, \vec{d}=\begin{pmatrix}-4\\-4\end{pmatrix}$ on the graph below.

b) Identify any properties of the quadrilateral using magnitudes (distances) and parallel/perpendicular vectors.

c) Classify the type of quadrilateral.



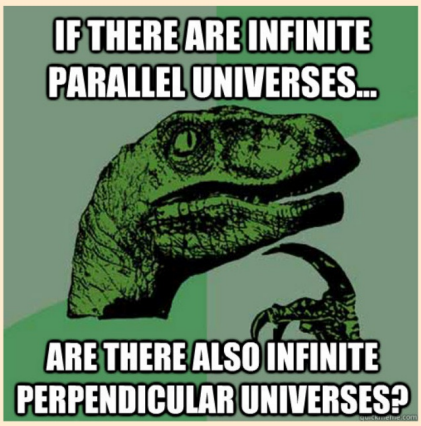
After making calculations, identify properties below:

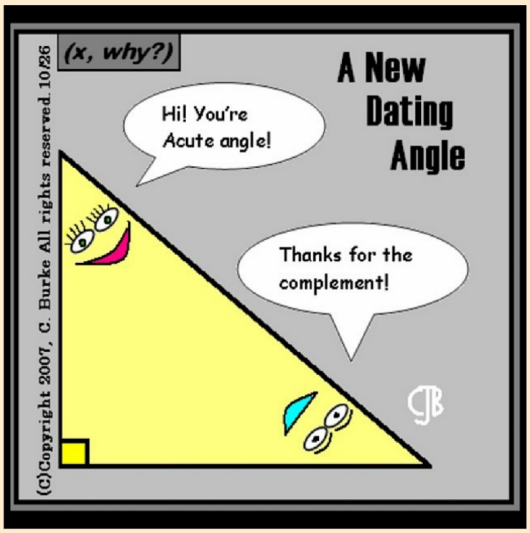
Quadrilateral

Parallel or Perpendicular Vectors:

Magnitudes (lengths):

Joke break!


IF THERE ARE INFINITE PARALLEL UNIVERSES...
ARE THERE ALSO INFINITE PERPENDICULAR UNIVERSES?


(x, why?)
A New Dating Angle
Hi! You're Acute angle!
Thanks for the complement!
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Exercises...

Make Quiz 2.1 Corrections!

(Classify at least 2 Quads)