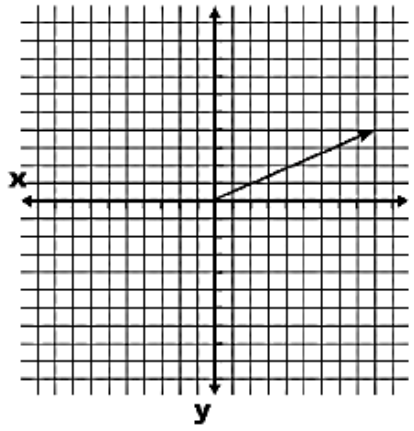
Name_____ Due Date_____ Period_____

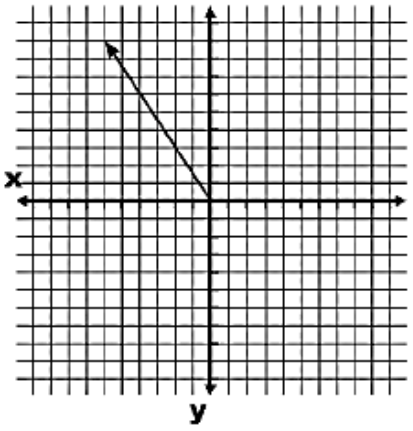
Unit 15 Review: VECTORS

Write each vector in component form (Choose 4 graphs and 4 points):

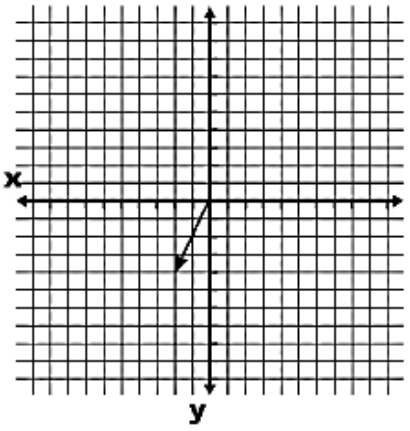
1.)



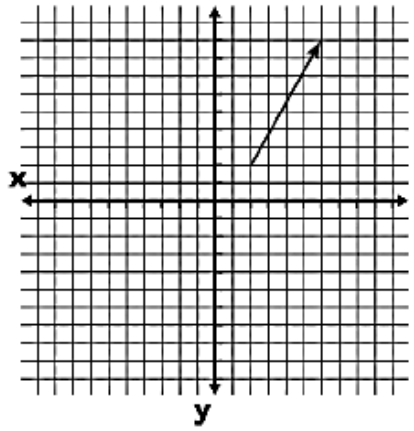
2.)



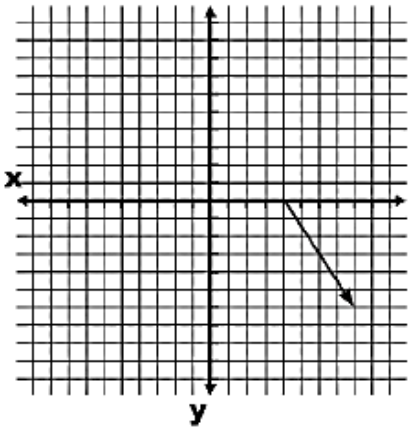
3.)



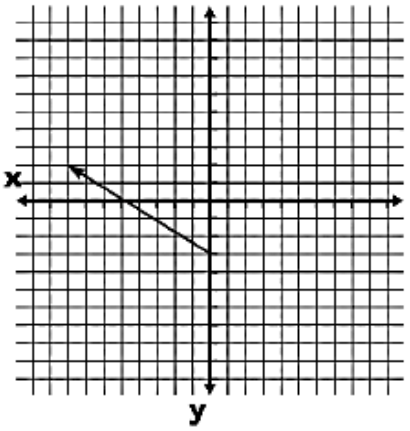
4.)



5.)



6.)



7.) Inital Point (0, 0)
Terminal Point (5, 4)

8.) Initial Point (-4, 1)
Terminal Point (-10, 3)

9.) Initial Point (1, 3)
Terminal Point (5, -4)

10.)Inital Point (0, 7)
Terminal Point (-2, 1)

11.) Initial Point (2, 0)
Terminal Point (8, 9)

12.) Initial Point (-6, -1)
Terminal Point (0, 5)

Find the Magnitude for 5 of the following:

13.) a = <2, 6>

14.) b = <3, -2>

15.) c = <-1, 7>

16.) d = <-3, -4>

17.) e = <5, -7>

18.) f = <-6, 8>

19.) g = <1, 4>

20.) h = <-10, -5>

21) Which fo the following is a vector or can be represented with a vector? Circle those bullets. Which are quantities? Draw a box around those bullets. Leave the others to rot.

- 43 piglets
- Airplane traveling north at 600 kph
- ⟶
- Charles
- Charles pulling a semi trailer southeast at 3 m/s
- Sierra running 62 inches each second
- Sierra running west at 62 inches each second
- The sun has a mass of 1.989E30 kg.
- 36 unicorns are prancing around the rainbow
- Jared lifts the rock up 4 meters
- Katie's phone is sinking down into the lake at 30 cm/s
- Tyler fills up 3 hard drives every year
- Emma flies her hovercar westward
- Brennan skips north to his abode at 5 mph
- Josh and Carter drive their tank northeast through the brick wall
- Alyssa, Teresa, and Morgan find $20
- Asdfghjkl;'qwertyuiop[]

For each of the following solve using vectors.

22) Shannon is traveling in her boat South 15 knots. The current is moving due west 2 knots. What is the resulting speed of Shannon's boat rounded to the nearest whole number?

23) Ashlyn and Ashley are on a private jet traveling north 145 mph the wind is blowing 45 mph west. What is their resulting speed of their plane rounded to the nearest whole number?

24) Suppose Jeff and Oakley are flying a bi-plane west at 145 mph. At the same time, the wind is blowing north at 30 mph. Find the resulting speed of the plane rounded to the nearest whole number.

Use the following vectors to answer 25-30: $\vec{v} = \langle 4, -2 \rangle, \vec{c} = \langle 1,3 \rangle, \vec{s} = \langle -7,4 \rangle, \vec{r} = \langle -2, -2 \rangle$ (choose 4 of the following)

25) $\vec{v} - \vec{c}$

26) $\vec{s} + \vec{r}$

27) $\vec{c} - \vec{v}$

28) $\vec{v} + \vec{c}$

29) $\vec{r} - \vec{c}$

30) $\vec{v} - \vec{s}$

Preform the indicated transformations on the vector $\vec{v} = \langle 7, -2 \rangle$.

31) Reflect over the x-axis

32) Rotate using $\begin{bmatrix} -5 & 0 \\ 0 & -5 \end{bmatrix}$

33) Reflect over the y-axis

34) Reflect across the origin.

35) Given the magnitude of a vector if given a scalar of -5 how would you find the new magnitude?

Use determinates to find the area of the indicated figures, round to the nearest whole number:

36) A triangle with vertices $(0,4)$, $(-1,-9)$, and $(7,-3)$.

37) A quadrilateral with vertices $(4,-1)$, $(7,4)$, $(3,2)$ and $(-2,-3)$.

38) A quadrilateral with vertices $(6,-1)$, $(2,-7)$, $(3,1)$ and $(-5,-7)$.

39) A triangle with vertices $(6,-1)$, $(-5,-7)$, and $(-6,3)$.