**4.9 Vectors**

AP Precalculus

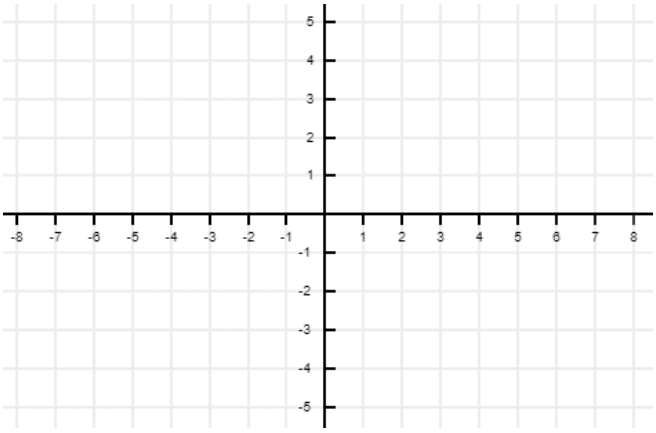
Name: _____

**CA #2**

**Directions: For the given vector-valued functions, complete the table and sketch the graph that the endpoints make.**

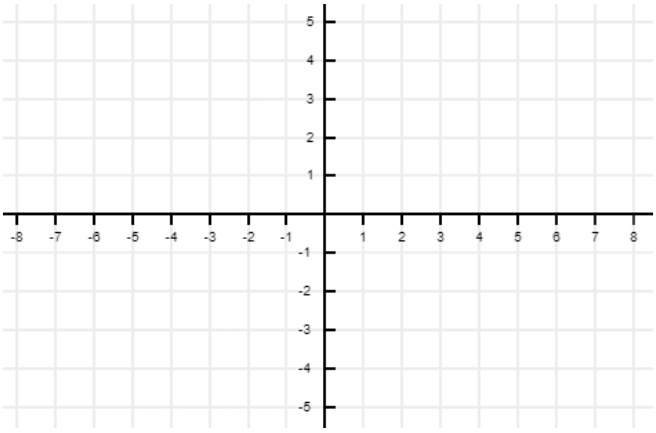
1) $f(t) = \langle 3t + 1, -t^2 \rangle$.

| $t$ | $x$ | $y$ |
|---|---|---|
| -2 | | |
| -1 | | |
| 0 | | |
| 1 | | |
| 2 | | |



2) $f(t) = \langle 4 \cdot 2^t, 2 \cdot 2^{-t} \rangle$.

| $t$ | $x$ | $y$ |
|---|---|---|
| -2 | | |
| -1 | | |
| 0 | | |
| 1 | | |
| 2 | | |



**Directions: Find the domains of the vector-valued function.**

3) $f(t) = \left\langle \frac{4}{t+5}, \sqrt{t-5} + 5 \right\rangle$

4) $f(t) = \langle 3t^3, t + 2 \rangle$

| **Directions: Describe the motion and find the speed of a particle in motion with the following vector at the given time.** | |
|---|---|
| 5) $v(t) = \langle t + 5, t^3 - t^2 \rangle, t = -3$ | 6) $v(t) = \langle 5t + 1, \sqrt{t + 4} + 9 \rangle, t = 12$ |

ANSWERS

1)

| X | Y |
|---|---|
| -5 | -4 |
| -2 | -1 |
| 1 | 0 |
| 4 | -1 |
| 7 | -4 |

2)

| X | Y |
|---|---|
| 1 | 8 |
| 2 | 4 |
| 4 | 2 |
| 8 | 1 |
| 16 | 0.5 |

3) $[5, \infty)$
4) $\mathbb{R}$
5) It moves to the right and down at a speed of $\sqrt{328} \approx 18.1$
6) It moves to the right and up at a speed of $\sqrt{3890} \approx 62.4$