Name _____

Homework 16
Section 4.8

1. (12) Suppose that a particle moves according to the equations

$$x = \frac{1}{2}t^4 - \frac{10}{3}t^3 + 6t^2 - 7, \qquad y = 2t^3 - 9t^2 + 12,$$

where the y-axis is vertical and the x-axis is horizontal.

(a) Does the particle ever come to a stop? If so, when and where?

(b) Is the particle ever moving straight up and down? If so, when and where?

(c) Is the particle ever moving straight horizontally? If so, when and where?

(d) What is the speed of the particle at $t = -1$? [It's okay to omit units this time]

2. (4) Find *three* distinct parameterizations of the line which passes through the points $(-3, 2)$ and $(1, 10)$.

3. (4) Use the graphs of f and g below to describe (sketch) the motion of a particle whose position at time t is given by $x = f(t)$ and $y = g(t)$. Be sure to include arrows to indicate direction.