1.   Find y' by implicit differentiation.
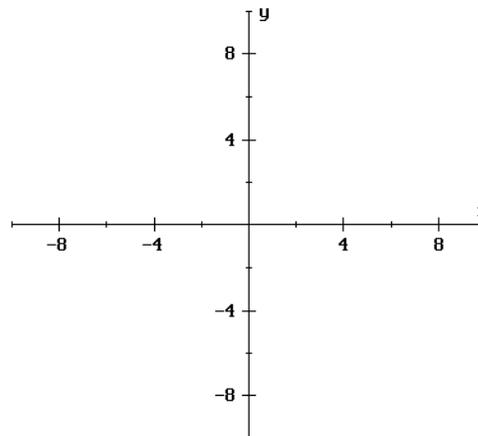$$sin7x - 3xy = 10 + y^3$$

2.   Consider the equation $(x - 4)^2 + (y - 5)^2 = 9$:
(1)   Find y' by implicit differentiation.

(2)   Find the slope of the tangent line to the curve at $(4, 2)$.

(3)   Graph the equation and the tangent line to the curve at $(4, 2)$.

3. A man starts walking north at 4 ft/s from a point P. Five minutes later a woman stars south at 5 ft/s from a point 500 ft due east of P. At what rate are the people moving apart 15 minutes after the woman starts walking?