

11. [6 points] The polynomial  $P_3(x) = 2 - 3(x + e)^2 + 5(x + e)^3$  is the third-degree Taylor polynomial approximating the function  $g(x)$  for  $x$  near  $-e$ . Find the following values. Write “NI” if there is not enough information.

$$g'(-e) = \underline{\hspace{2cm}} \qquad g(-e) = \underline{\hspace{2cm}} \qquad g'''(-e) = \underline{\hspace{2cm}}$$

$$P_3^{(4)}(-e) = \underline{\hspace{2cm}} \qquad g(0) = \underline{\hspace{2cm}} \qquad P_3(0) = \underline{\hspace{2cm}}$$

12. [6 points] Match the differential equations to their corresponding slope fields.

i.  $y' = x^2 + y^2$   $\underline{\hspace{2cm}}$

iv.  $y' = x(y^2 - 1)$   $\underline{\hspace{2cm}}$

ii.  $y' = \frac{y}{x}$   $\underline{\hspace{2cm}}$

v.  $y' = x(1 - y^2)$   $\underline{\hspace{2cm}}$

iii.  $y' = -\frac{x}{y}$   $\underline{\hspace{2cm}}$

vi.  $y' = \frac{3x^2 + 1}{2y}$   $\underline{\hspace{2cm}}$

