6. [10 points] Match the following. For each blank, there is only one correct answer.

a. [4 points] For each slope field on the left, write the letter corresponding to the differential equation that generates that slope field in the blank provided.

\[ \frac{dy}{dx} = (y + 2)(y - 1) \] 
(A.)

\[ \frac{dy}{dx} = (y - 2)(y + 1) \] 
(B.)

\[ \frac{dy}{dx} = (y + 1)(y - 2)^2 \] 
(C.)

\[ \frac{dy}{dx} = (2 - x)(y + 1) \] 
(D.)

\[ \frac{dy}{dx} = (x - 2)(y + 1) \] 
(E.)

\[ \frac{dy}{dx} = (x - 1)(y - 2) \] 
(F.)

b. [6 points] Let \( r(\theta) = k \) be a polar curve where \( k > 0 \) is a constant. Match the quantities on the left with their formulas (in terms of \( \theta \)) on the right.

I. \( \frac{dy}{d\theta} = \) 
(A.) \( k \cos(\theta) \)
(B.) \( -k \cos(\theta) \)
(C.) \( k \sin(\theta) \)

II. \( \frac{dx}{d\theta} = \) 
(D.) \( -k \sin(\theta) \)
(E.) \( \tan(\theta) \)
(F.) \( -\tan(\theta) \)

III. \( \frac{dy}{dx} = \) 
(G.) \( \frac{1}{\tan(\theta)} \)
(H.) \( -\frac{1}{\tan(\theta)} \)