1.(1 pt)

Match the following equations with their direction field. Clicking on each picture will give you an enlarged view. While you can probably solve this problem by guessing, it is useful to try to predict characteristics of the direction field and then match them to the picture.

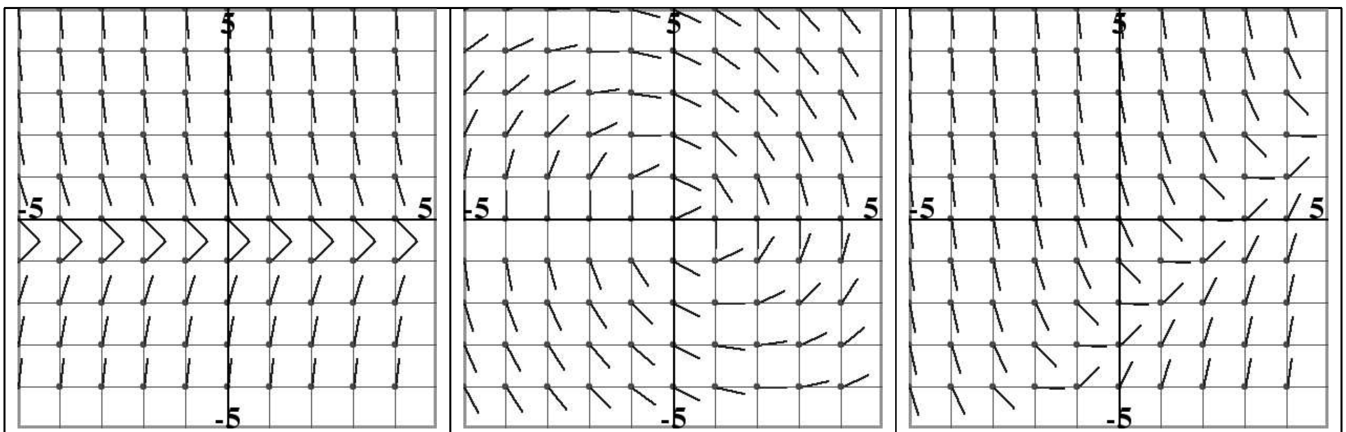
Here are some handy characteristics to start with – you will develop more as you practice.

A. Set y equal to zero and look at how the derivative behaves along the x axis.
B. Do the same for the y axis by setting x equal to 0
C. Consider the curve in the plane defined by setting y'=0 – this should correspond to the points in the picture where the slope is zero.
D. Setting y' equal to a constant other than zero gives the curve of points where the slope is that constant. These are called isoclines, and can be used to construct the direction field picture by hand.

Go to **this page** to launch the phase plane plotter to check your answers. (Choose the "integral curves utility" from the applet menu, enter dx/dt=1 to identify the variables x and t and then enter the function you want for dy/dx = dy/dt = ...).

(You can also login as practice1, or practice2 (use the login name as a password) and you can then practice more versions of this problem and the next one.)

__ 1. $y' = -1 - 2y$
__ 2. $y' = -2 + x - y$
__ 3. $y' = -\frac{2x+y)}{(2y)}$



A	B	C

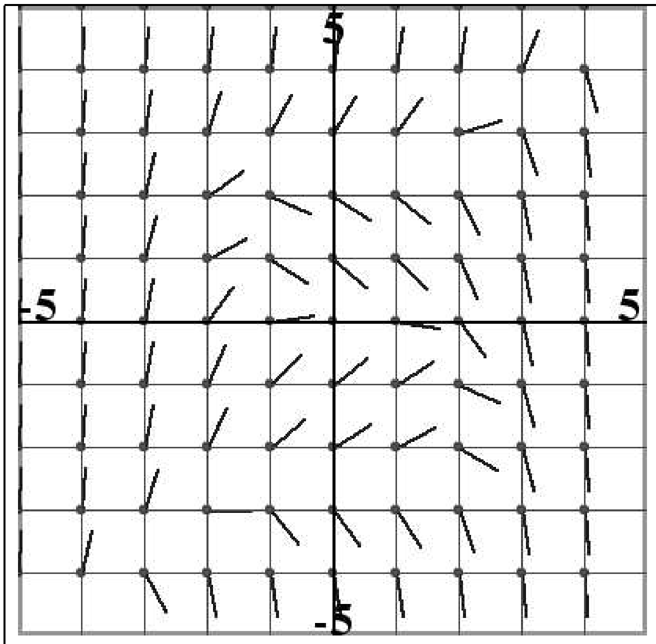
2.(1 pt)

This problem is harder, and doesn't give you clues as to which matches you have right. Study the previous problem, if you are having trouble.

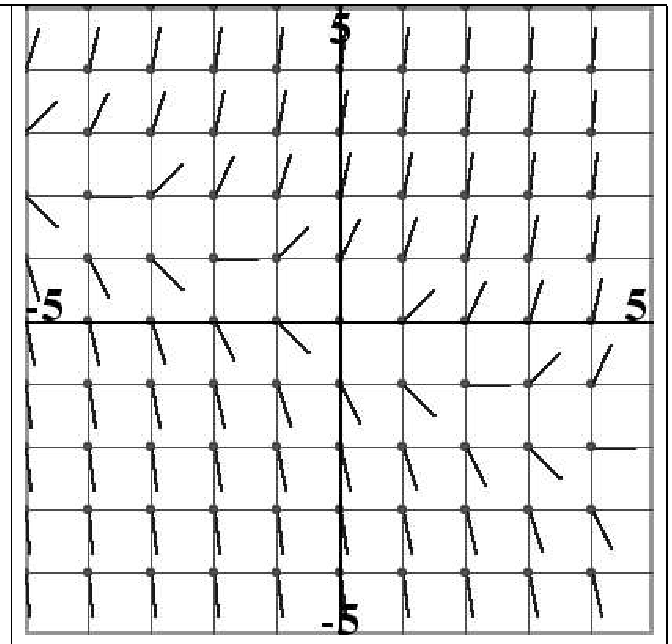
Go to **this page** to launch the phase plane plotter to check your answers.
(You can also login as practice1, or practice2 (use the login name as a password) and you can then practice more versions of this problem and the previous one.)

Match the following equations with their direction field. Clicking on each picture will give you an enlarged view.

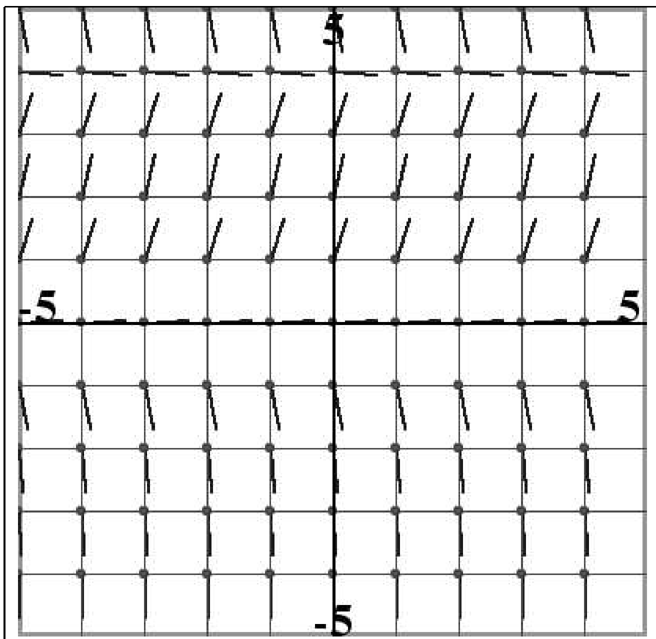
__ 1. $y' = x + 2y$
__ 2. $y' = \frac{y^3}{6} - y - \frac{x^3}{6}$
__ 3. $y' = -y(5 - y)$
__ 4. $y' = y(4 - y)$



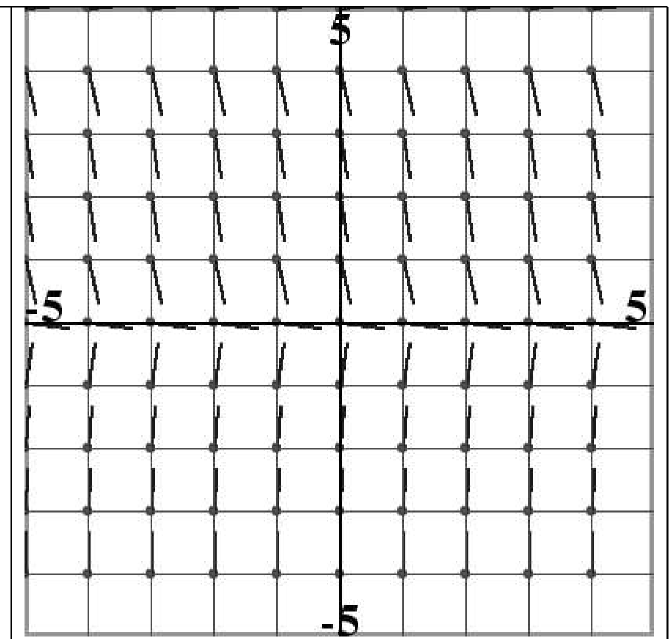
A



B



C



D

3.(1 pt)

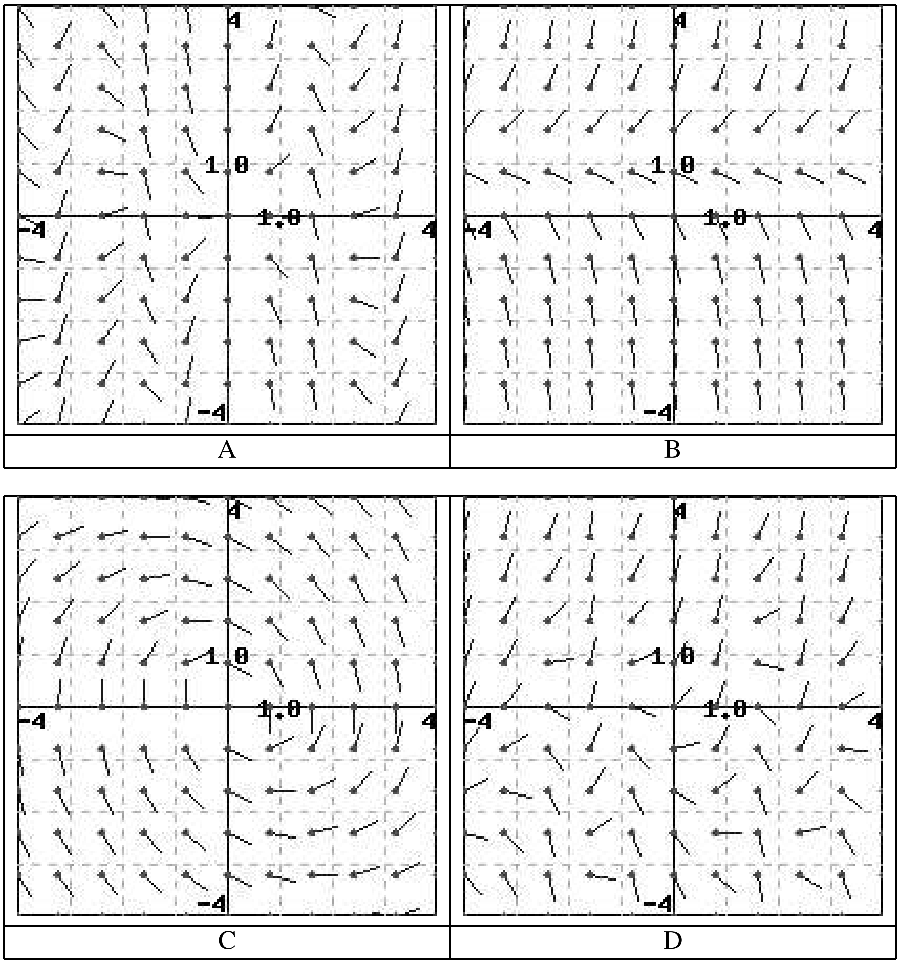
Match the following equations with their direction field. Clicking on each picture will give you an enlarged view. While you can probably solve this problem by guessing, it is useful to try to predict characteristics of the direction field and then match them to the picture.

Here are some handy characteristics to start with – you will develop more as you practice.

A. Set y equal to zero and look at how the derivative behaves along the x axis.
B. Do the same for the y axis by setting x equal to 0
C. Consider the curve in the plane defined by setting y'=0 – this should correspond to the points in the picture where the slope is zero.

D. Setting y' equal to a constant other than zero gives the curve of points where the slope is that constant. These are called isoclines, and can be used to construct the direction field picture by hand.

__ 1. $y' = -\frac{2x+y)}{(2y)}$
__ 2. $y' = \frac{y}{x} + 3\cos(2x)$
__ 3. $y' = 2y - 2$
__ 4. $y' = 2\sin(3x) + 1 + y$



4.(1 pt)

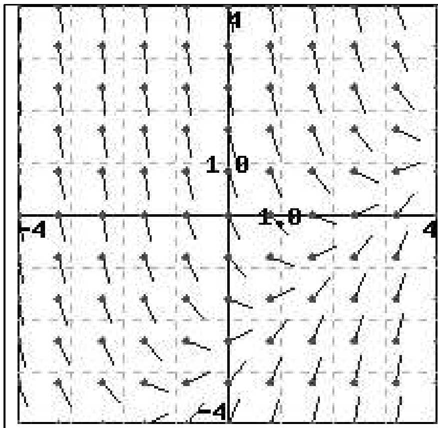
Match the following equations with their direction field. Clicking on each picture will give you an enlarged view. While you can probably solve this problem by guessing, it is useful to try to predict characteristics of the direction field and then match them to the picture.

Here are some handy characteristics to start with – you will develop more as you practice.

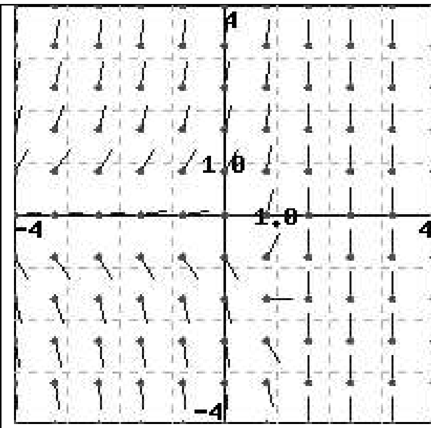
A. Set y equal to zero and look at how the derivative behaves along the x axis.
B. Do the same for the y axis by setting x equal to 0
C. Consider the curve in the plane defined by setting y'=0 – this should correspond to the points in the picture where the slope is zero.
D. Setting y' equal to a constant other than zero gives the curve of points where the slope is that constant. These are called isoclines, and can be used to construct the direction field picture by hand.

__ 1. $y' = -\frac{2x+y)}{(2y)}$
__ 2. $y' = e^{-x} + 2y$
__ 3. $y' = 2y + x^2 e^{2x}$

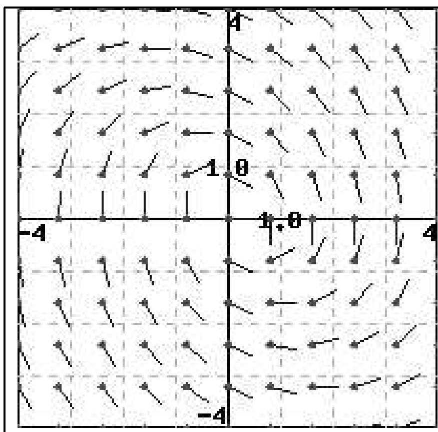
__ 4. $y' = -2 + x - y$



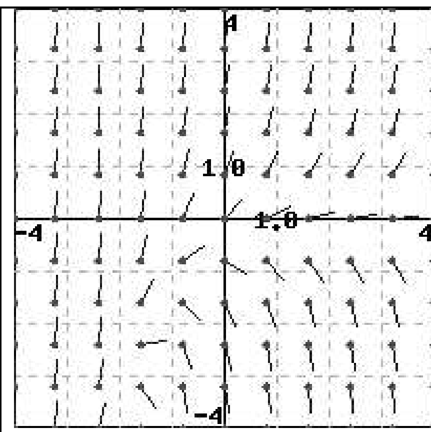
A



B



C



D