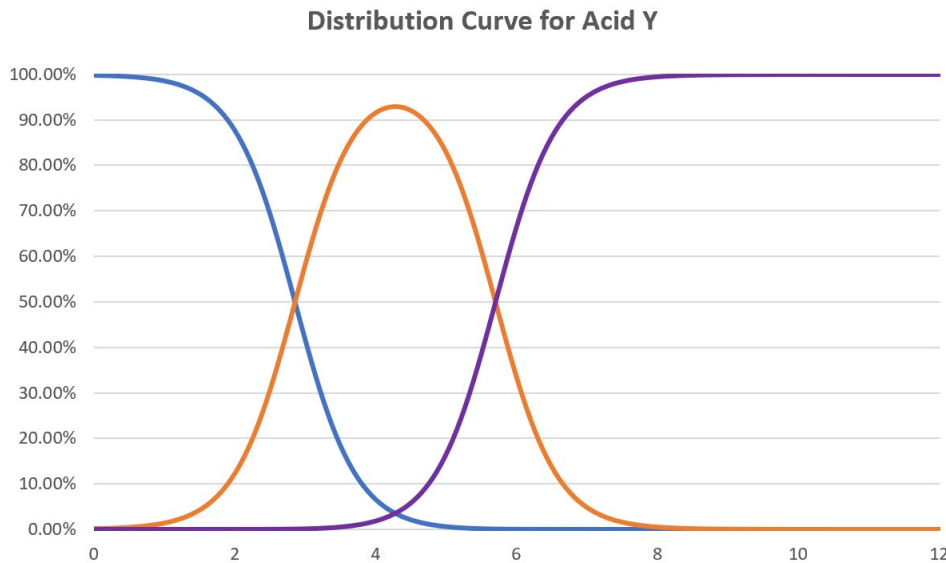
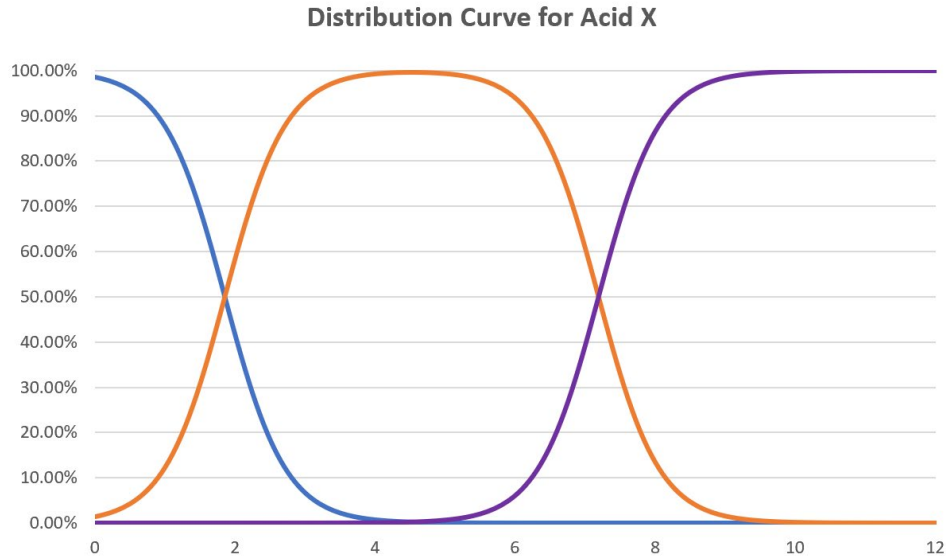


## Exercise 12.5 Distribution Curves

1. Consider the following distribution curves for “Acid X” and “Acid Y”:



- (a) Is each acid monoprotic, diprotic or triprotic? How can you tell?
- (b) Each graph has a blue curve, an orange curve and a purple curve. Label each curve on each graph with the species whose abundance it shows ( $HA$ ,  $A^-$ ,  $H_2A$ ,  $HA^-$ ,  $A^{2-}$ , etc.)
- (c) For each acid, identify all forms with at least 10% abundance at pH 7.
- (d) What properties of each acid can be deduced from the points on each graph at which two curves cross? Label those points appropriately.
- (e) The orange curve for Acid X extends up to 100% abundance while the orange curve for Acid Y does not. Why is this difference observed?