Pulleys – 2.6 in text

All that a pulley does is change the direction of the force. It is considered massless and frictionless.

To solve these problems:

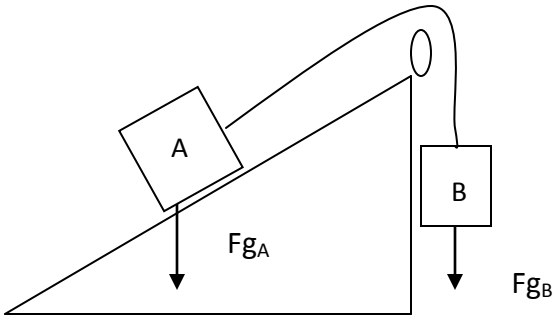
1) Draw it! Do a FBD first and if there's a ramp immediately calculate Fgparallel and Fgperpendicular.

2) Make an educated guess re: which way the system will go. Set that way as +ve. Draw this on diagram. Do not worry if your guess is wrong….it all works out!

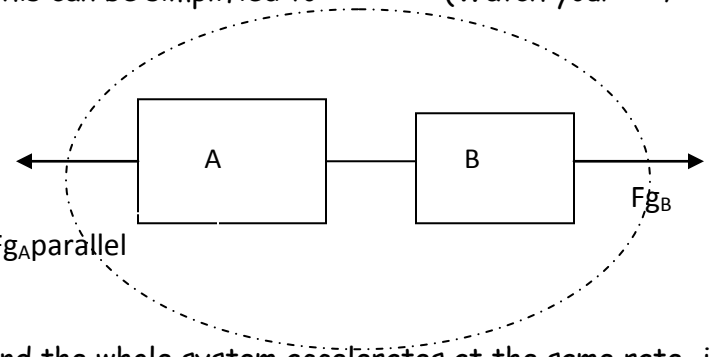
3) Solve 'a' for the system. This is what we did for Newton's 3rd law questions. Every part of the system will accelerate at the same rate. Remember that friction opposes motion.

4) 'Tension' means the forced applied through the rope. You may need to calculate the internal tension. Analyze a 'part' to do this. Again…just like Newton's 3rd law.

Ramps and pulleys simply to a 1D 'tug-of-war' once analyzed. Take a look.



This can be simplified to: (Watch your +/- signs!!



…and the whole system accelerates at the same rate…in the same direction!