**Solve each problem with the lens & mirror equation and ray tracing. Each ray diagram must have at least two principle rays.**

1. A 0.10 meter high object is placed 10.0 cm in front of a convex lens with a focal length of 5.0 cm.  What is the image distance?  What is the magnification?  Draw a ray diagram for this situation.
2. A 0.20 meter high object is placed 25 cm in front of a concave lens with a focal length of -5.0 cm.  What is the image distance?  What is the magnification?  Draw a ray diagram for this situation.
3. A  0.12 meter high object is placed 30.0 cm in front of a concave mirror with a focal length of 10.0 cm.  What is the image distance?  What is the magnification?  Draw a ray diagram for this situation.
4. A 0.05 meter high object is placed 5.0 cm in front of a convex mirror with a focal length of -10.0 cm..  What is the image distance?  What is the magnification?  Draw a ray diagram for this situation.