

Year 11 Lenses

Converging (convex) Lenses

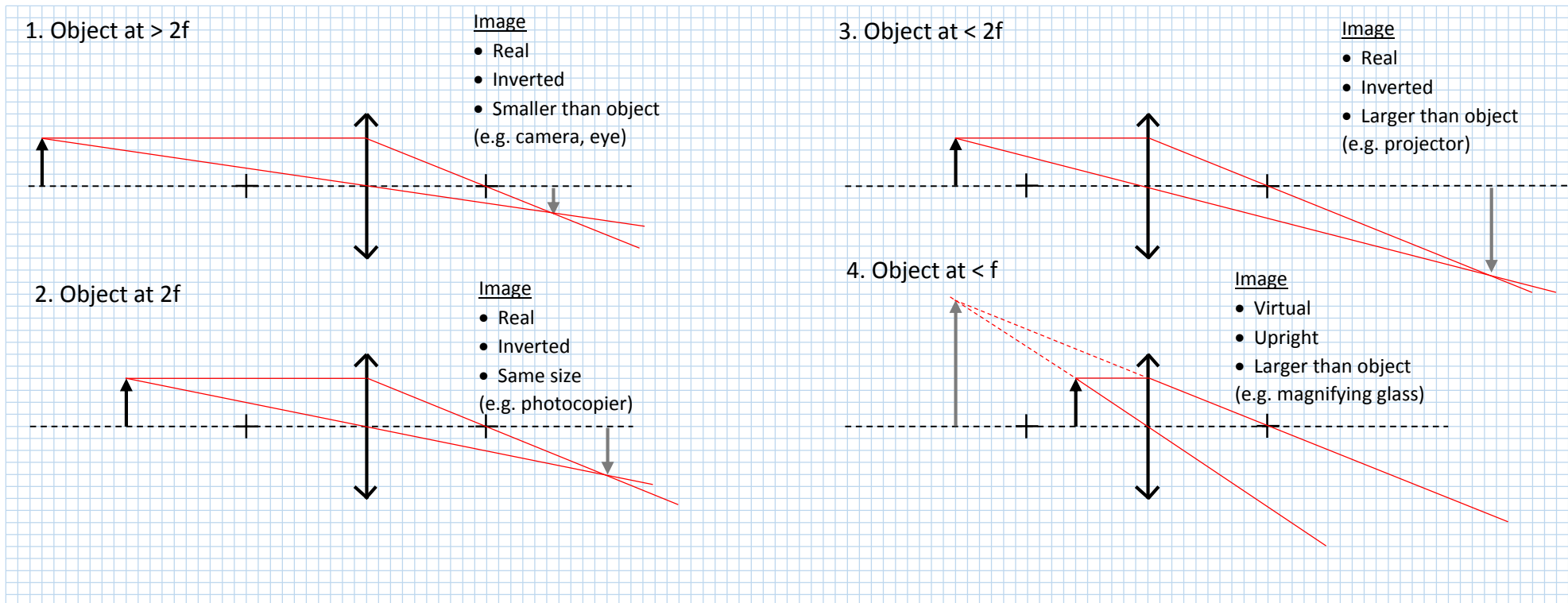
Rules for ray diagram construction

1. Parallel Ray: A ray parallel to the optical axis passes through the focal point on the other side
2. Focal Ray: A ray that passes through the focal point emerges parallel to the optical axis on the other side
3. Centre Ray: A ray that passes through the centre of the lens continues with no change in direction

(You usually only need to use 2 of these rules to find the position and orientation of the image)

TASK:

- In each case construct a ray diagram to show where the image is formed.
- Describe the image formed (i.e. its orientation, whether it is real or virtual and how its size compares to the object)
- Give an example of where this lens may be used.



f = focal length (i.e. distance from the lens to the focal point)

Diverging (Concave) Lenses

Rules for ray diagram construction

1. Parallel Ray: A ray parallel to the optical axis passes emerges as though it was coming from the focal point
2. Focal Ray: A ray that is heading towards the focal point on the other side emerges parallel to the optical
3. Centre Ray: A ray that passes through the centre of the lens continues with no change in direction

TASK: Construct a ray diagram to show where the image would be formed for the concave lens

