Exercise (□ 5.1). Any non incident line and point in $\mathbb{E}^3$ determine exactly one plane. (a Line and point are incident if the point is a subset of a line.)

Answer: Case 1: suppose an ordinary line l with ideal point $P[\![l]\!]$ and an ordinary point A. Let k be the ordinary line through A with ideal point $P[\![k]\!]$ such that $P[\![k]\!] = P[\![l]\!]$. By definition $l \parallel k$ so we can construct a line j that is perpendicular to both l and k which determines a plane.

Case 2: Suppose an Ideal line l and a non incident ideal point A. Note that by definition this determines the ideal plane α_∞.

Case 3: Suppose an ideal line l and an ordinary point A. Consider the Ideal plane $P[\![\alpha]\!]$ that contains point A.

□

Exercise (□5.2). Any three non-collinear points in $\mathbb{E}^3$ determine exactly one plane.

Answer: Case 1: Three non-collinear ideal points, by definition determine the ideal plane, α_∞.
Case 2:

□

Exercise (□3 Monson (p.7)). *Answer:* □

Exercise (□1 Monson (p.21)). *Answer:* □