Durham University
Pavel Tumarkin

Epiphany 2019

Geometry III/IV, Hints: weeks 17–18

17.1. Use the upper half-plane model (to put the common point of the two lines on the absolute to an appropriate place).

17.2. Use the upper half-plane model.

17.3. Show that an orientation-reversing isometry always preserves two points of the absolute (you don't need to compute anything for that!).

17.4. Use the classification of isometries.

17.5. (a) Compute using the formula for the reflection.
(b) Use Q.
(c) Find the example using two lines intersecting at the centre of the model $(0, 0, 1)$.

18.1. (a),(b) Use the upper half-plane model.
(c),(d) Use the orthogonal projections of the points A, B, C to l (you probably don't need any model for these parts).

18.2. (a) Consider the reflection with respect to h.
(d) You may want to use (c) and 17.2 here.

Here are the diagrams showing what can happen in (c) and (d):