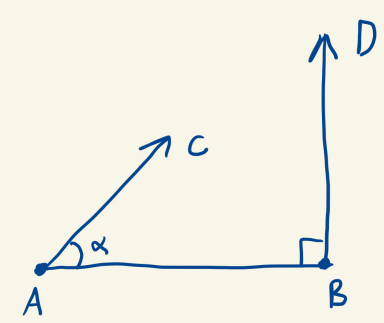
1. Prove that the exterior angles of a regular pentagon add to four right angles.

2. Deduce that all angles of a rhombus (a paralellogram with equal sides) are equal.

3. Here is a special case of Euclid's parallel postulate, which we will call the **right triangle axiom**.

   Given a right angle ABD and an acute angle $\alpha = CAB$ on the same side of the line AB, the ray AC when extended will intersect the extension of ray BD.

   Show that the right triangle axiom is equivalent to Playfair's axiom. That is, show that Euclid Book I Postulates 1-4 together with the right triangle axiom imply Playfair's axiom, and that Book I Postulates 1-4 together with Playfair's axiom imply the right triangle axiom.

4. For complex numbers $z_1 = x_1 + iy_1$ and $z_2 = x_2 + iy_2$, use a direct computation (without resort to polar coordinates) to show that $|z_1 z_2| = |z_1||z_2|$. You will probably find it easier to show $|z_1 z_2|^2 = |z_1|^2 |z_2|^2$, which is fine.

5. Henle 2.10

6. Henle 2.15

7. Henle 2.18 (a,c,j)