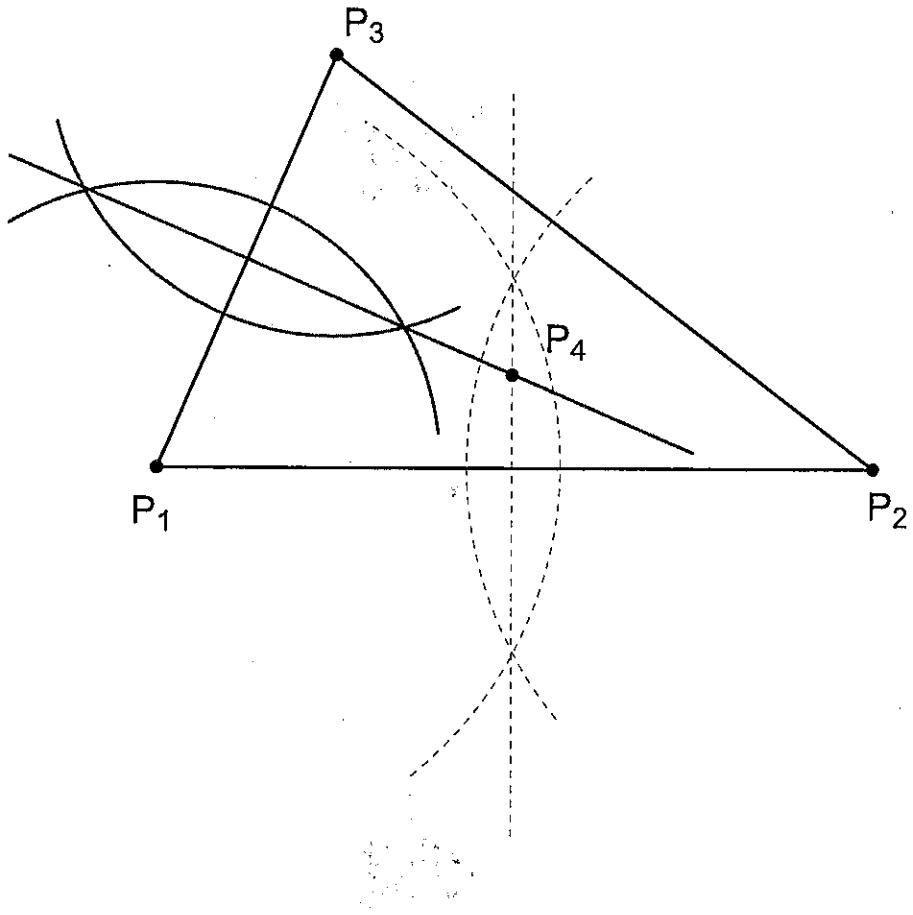
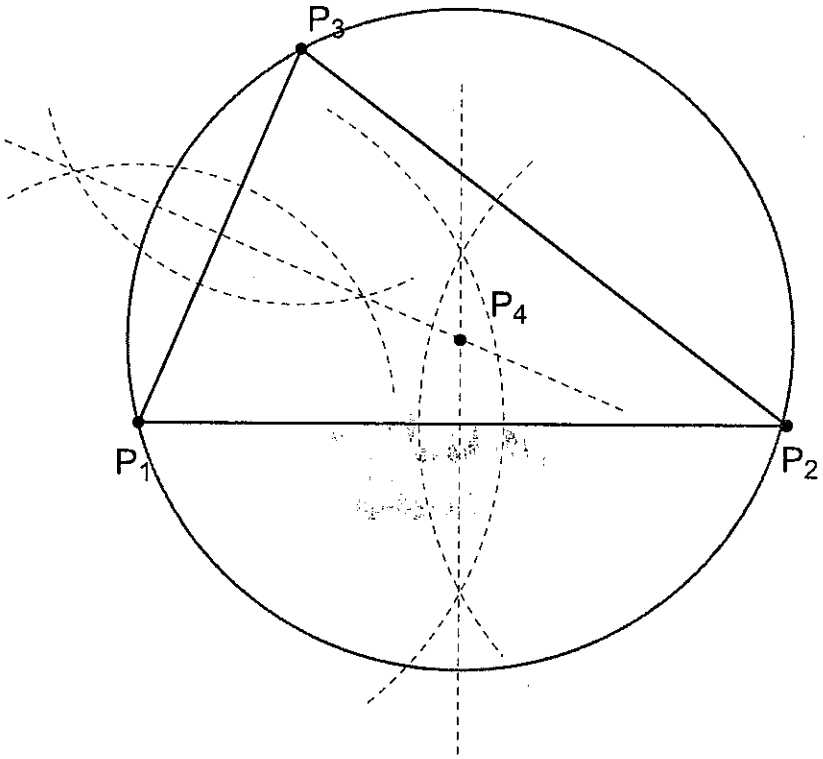
C.27 Circumcenter of a Triangle / Circumscribing a Circle About a Triangle (2 steps):

1. construct at least two perpendicular bisectors of the sides of a triangle (the intersection of the perpendicular bisectors, P_4, is the circumcenter)



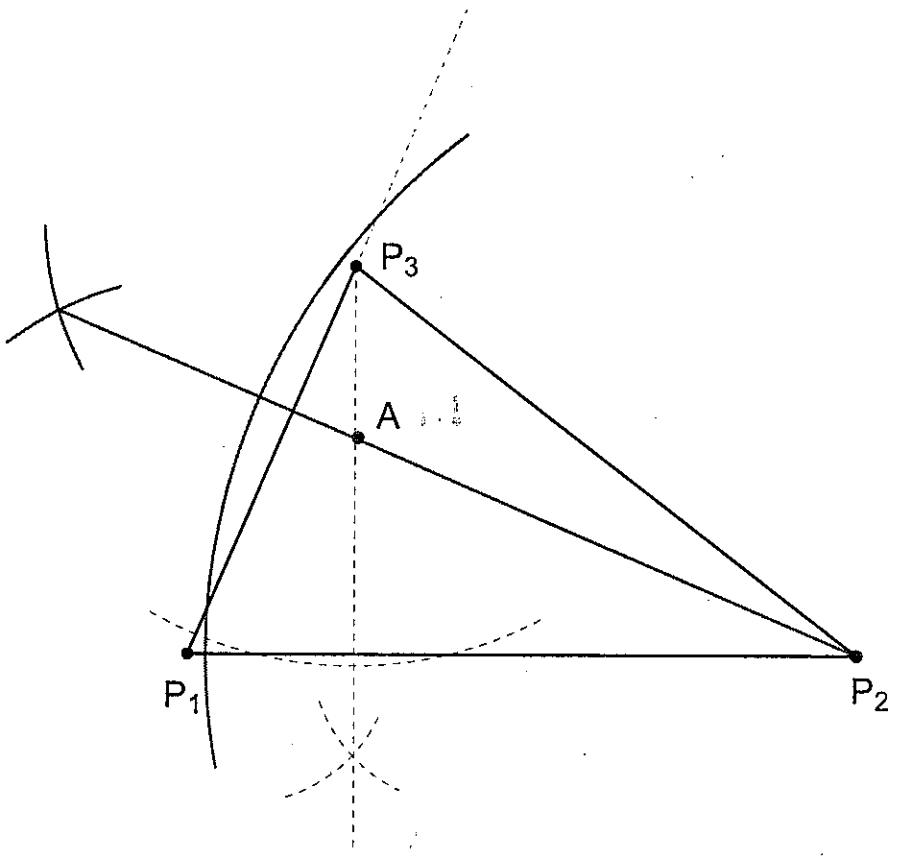
refer to C.5 for instructions on constructing a perpendicular bisector

2. place the compass tip on the circumcenter, P_4, and adjust the compass to a vertex, P_1 (this is the radius of the circumscribed circle), then construct the circumscribed circle



C.30 Orthocenter of a Triangle (1 step):

1. construct at least two altitudes of the triangle (the intersection of the altitudes, A, is the orthocenter)

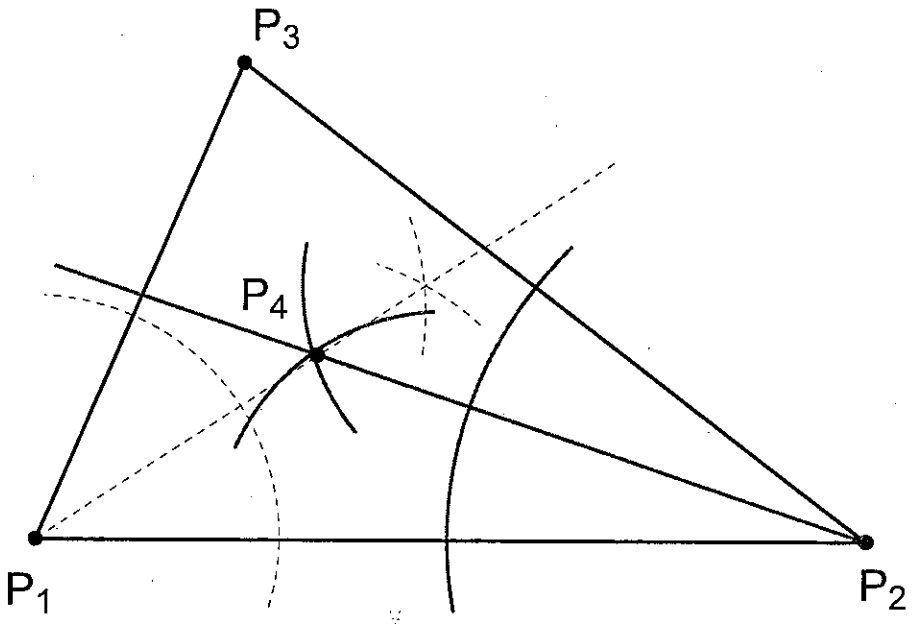


refer to C.9 for instructions on constructing a perpendicular from a point off a segment

C.28 Incenter of a Triangle / Inscribing a Circle Within a Triangle (3 steps):

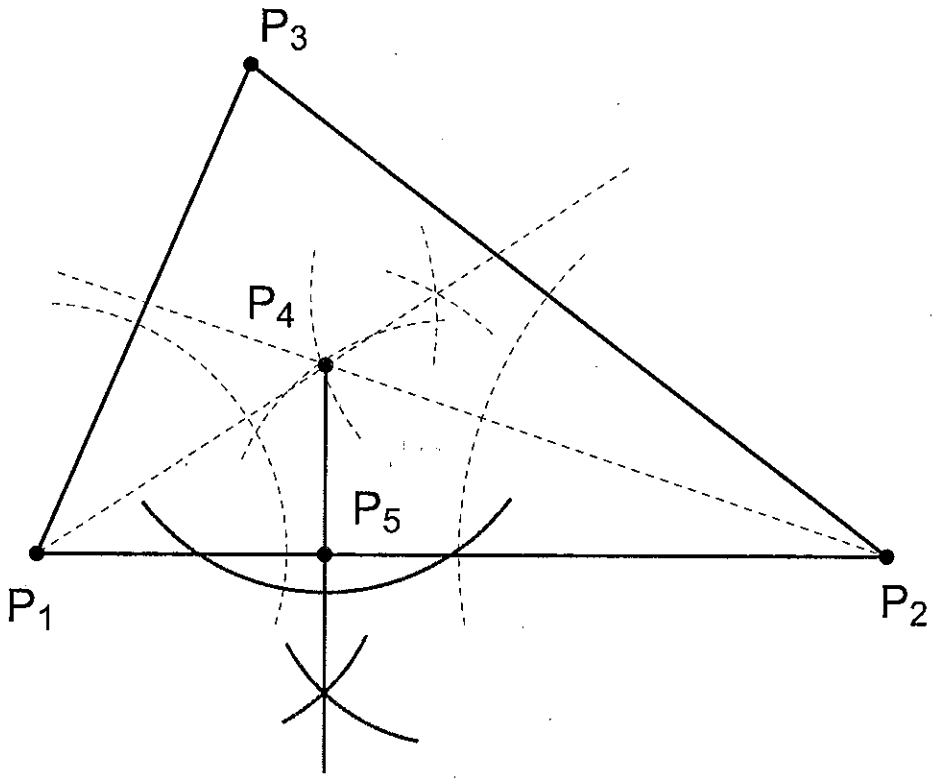
1. construct at least two angle bisectors of the triangle (the intersection of the angle bisectors, P_4, is the incenter)

refer to C.6 for instructions on constructing an angle bisector



refer to C.9 for instructions on constructing a perpendicular through a point off a segment

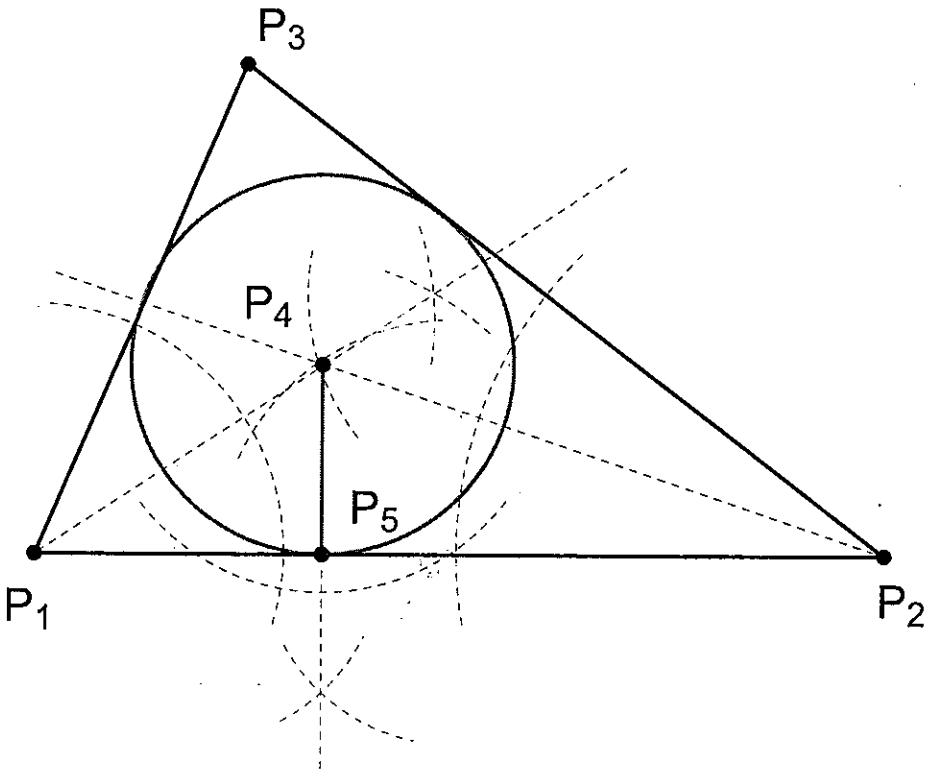
2. from the incenter, construct a perpendicular to any side of the triangle (this is the radius of the inscribed circle)



Men of Mathematics: The Lives and Achievements of the Great Mathematicians from Zeno to Poincare' by E.T. Bell

Isaac Newton's description of himself "I do not know what I may appear to the world; but to myself I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me."

3. place the compass tip on the incenter and adjust the compass to the measure of the perpendicular from step #2, then construct the inscribed circle



Adams, John
(1735 - 1826)

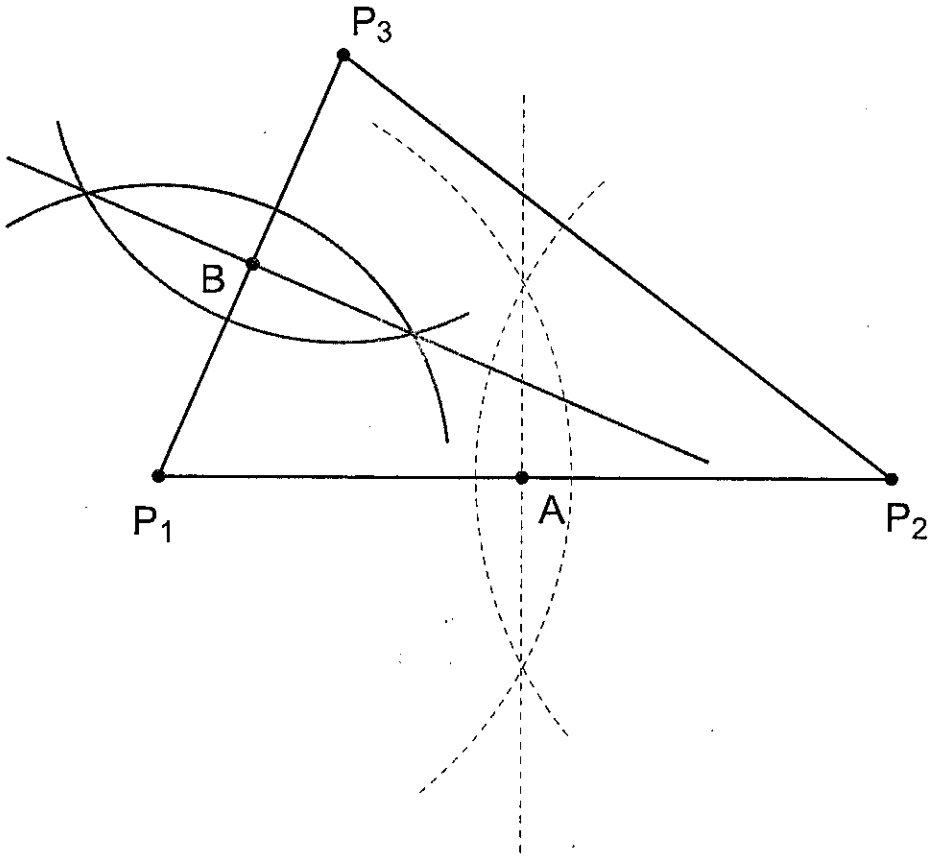
I must study politics and war that my sons may have liberty to study mathematics and philosophy. My sons ought to study mathematics and philosophy, geography, natural history, naval architecture, navigation, commerce and agriculture in order to give their children a right to study painting, poetry, music, architecture, statuary, tapestry, and porcelain.

Letter to Abigail Adams, May 12, 1780

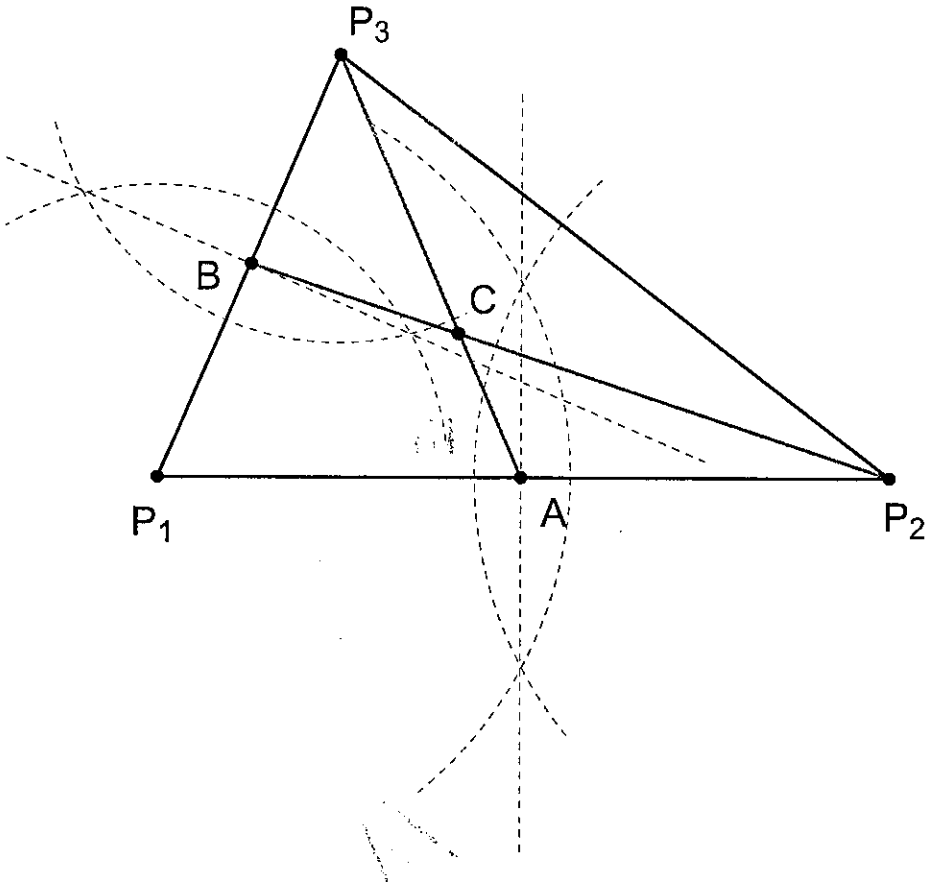
C.29 Centroid of a Triangle (2 steps):

1. construct at least two perpendicular bisectors of the triangle, label the midpoints A and B

refer to C.5 for instructions on constructing a perpendicular bisector



2. connect each midpoint, A and B, to its opposite vertex, P_3 and P_2 to form medians AP_3 and BP_2. The point of intersection of these two medians is the centroid, C

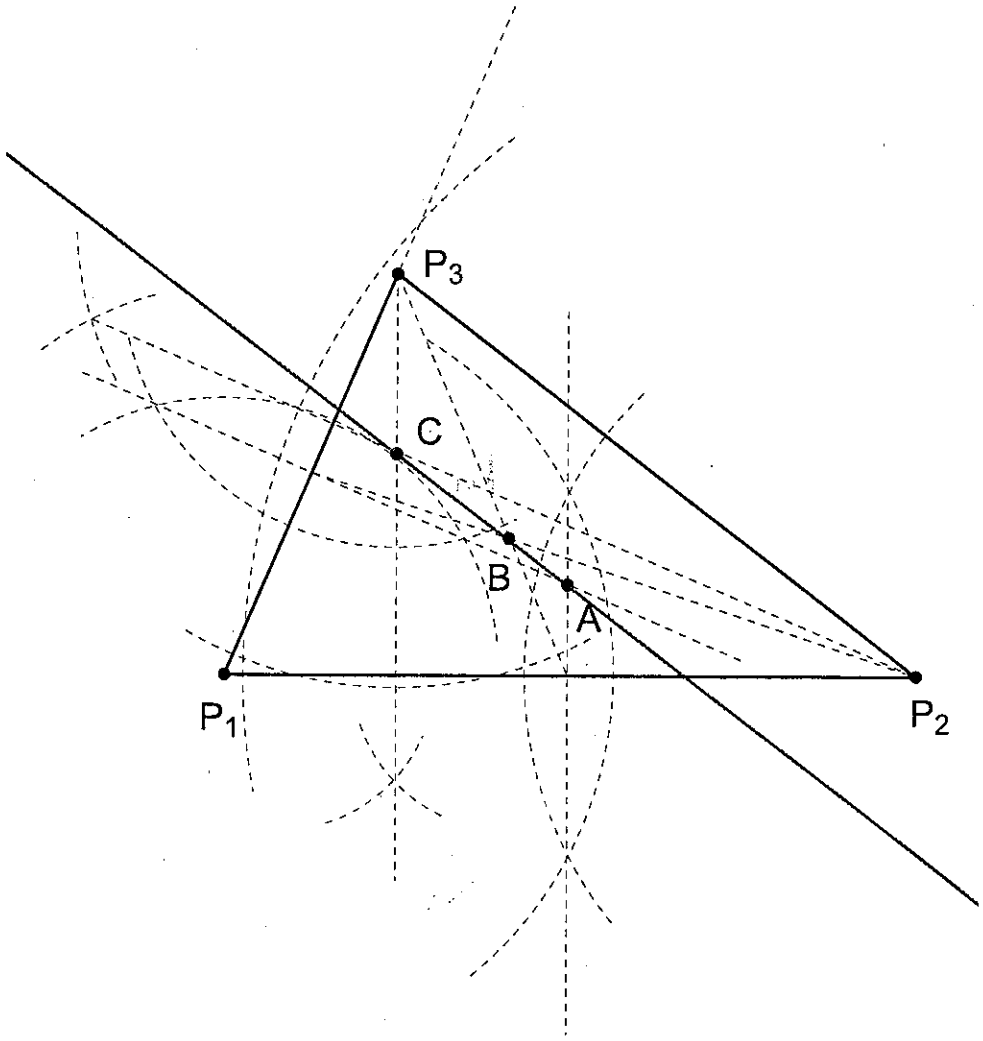


Chesterton, G. K. (1874 - 1936)

It isn't that they can't see the solution. It is that they can't see the problem.

The Point of a Pin in The Scandal of Father Brown.

connect the circumcenter (A), centroid (B), and orthocenter (C) with a single line, this is Euler's Line



Leonhard Euler *[upon losing the use of his right eye]*

Now I will have less distraction.

Quoted in H Eves In Mathematical Circles (Boston 1969).