

THE PYTHAGOREAN THEOREM ON THE TI-92

c:\winword\cabri\righttri.doc 2/18/98

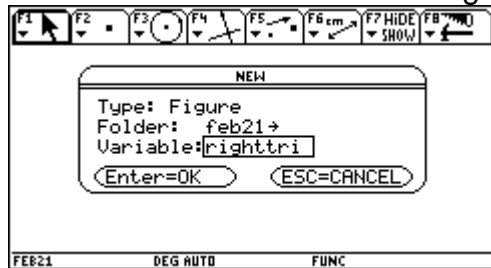
1. APPS



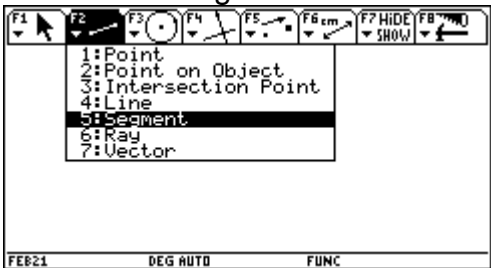
2. Geometry 3:New...



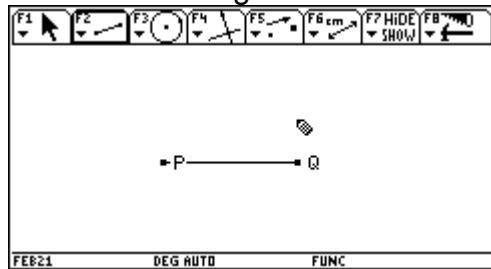
3. Folder: feb21 Variable: righttri



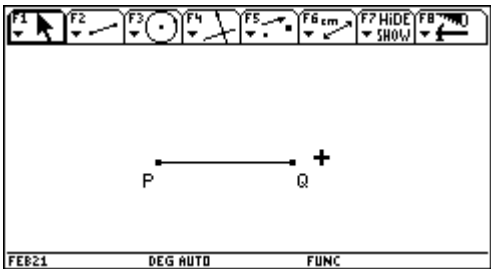
4. F2 5: Segment



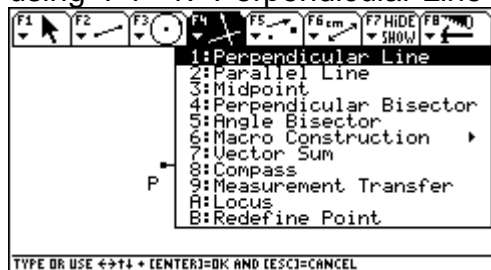
5. Construct segment PQ



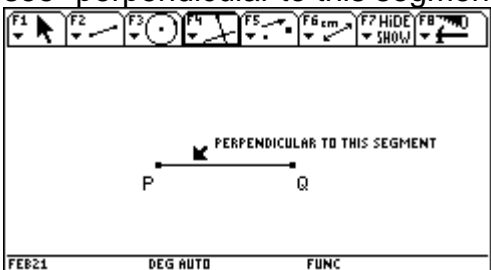
6. ESC then "move" labels P and Q



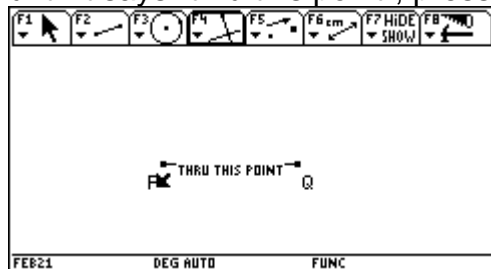
7. Construct a segment PR \perp segment PQ using F4 1: Perpendicular Line



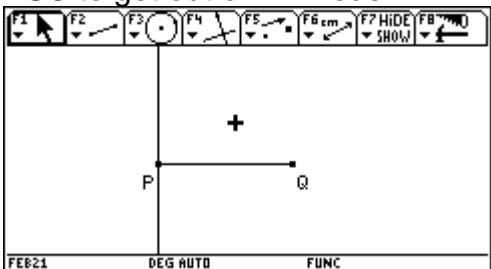
8. Point to segment PQ until you see "perpendicular to this segment"



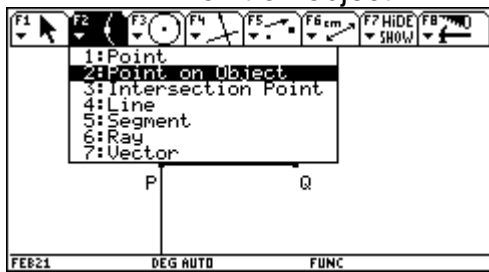
9. Then point to either point P or its label until it says "thru this point", press enter



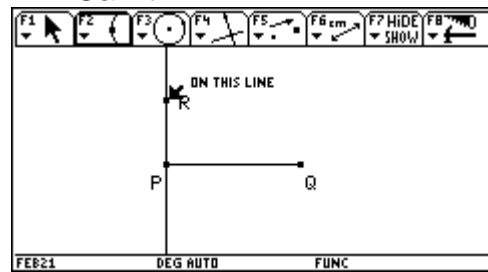
10. Pull "pencil" away and press ESC to get out of \perp mode



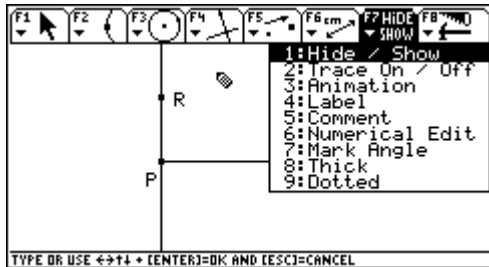
11. F2 2: Point on object



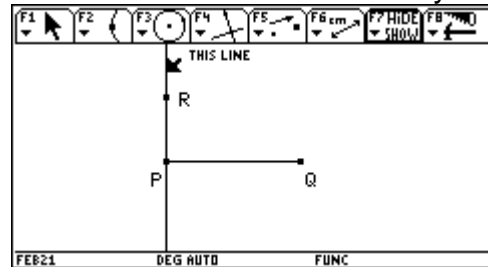
12. Call it R



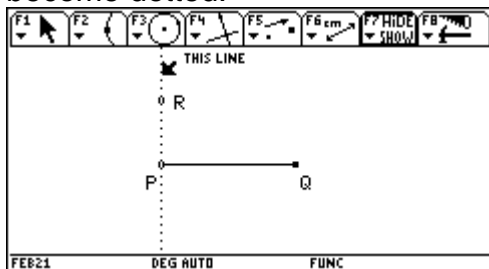
13. "Hide" Line PR F7 1:



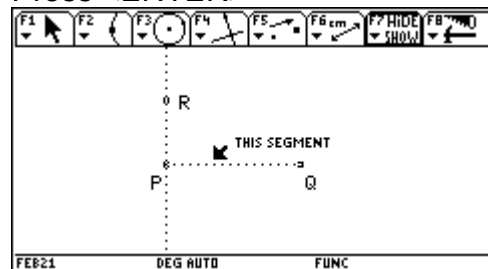
14. Point to line PR until it says "THIS LINE"



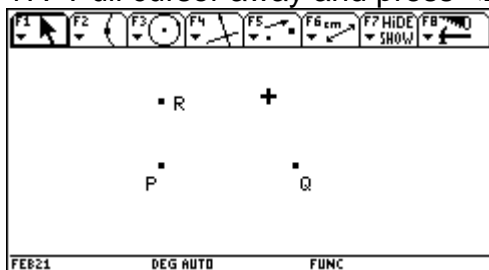
15. Press <ENTER> The line should become dotted.



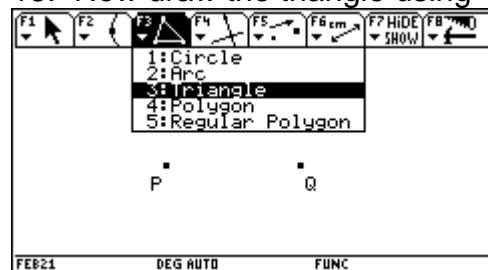
16. Point to segment PQ and Press <ENTER>



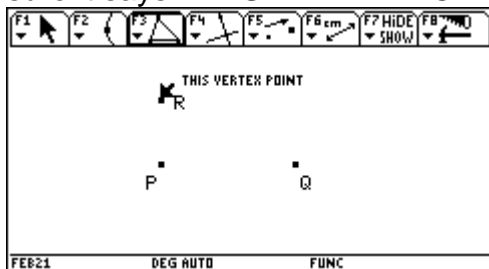
17. Pull cursor away and press <ESC>



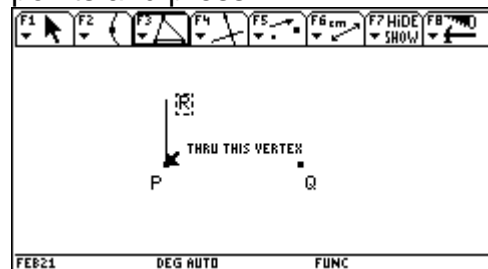
18. Now draw the triangle using F3 3:



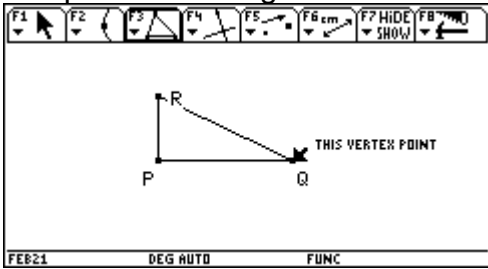
19. Start at any point, eg. R, make sure it says "THIS VERTEX POINT"



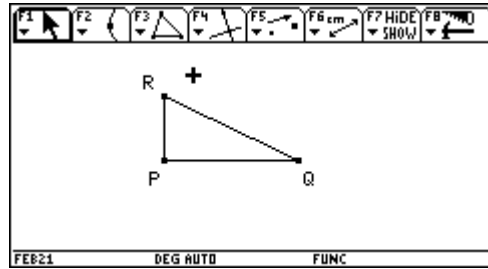
20. Press <ENTER> and trace to other points and press <ENTER>



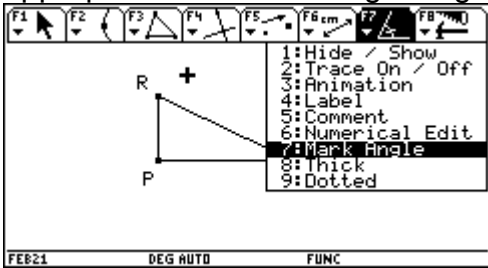
21. When you get to vertex Q, hit <ENTER> twice: once for side PQ and once to complete the triangle.



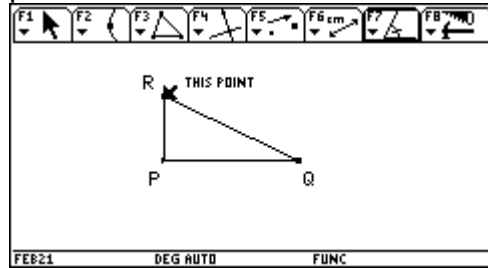
22. Pull away, hit <ESC>. Then "grab" point R and pull it away from the triangle.



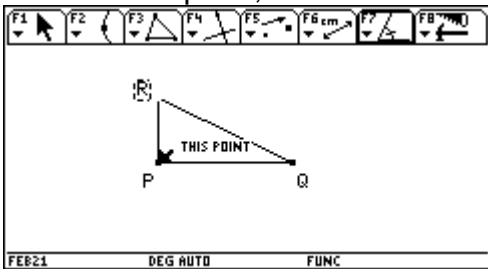
23. To "class up" the picture let's put an appropriate mark at the right angle. F7 7:



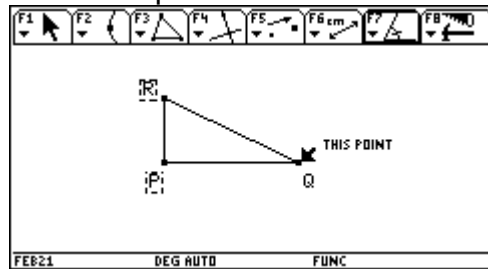
24. You must tell which angle by naming 3 points with the vertex as the second point.



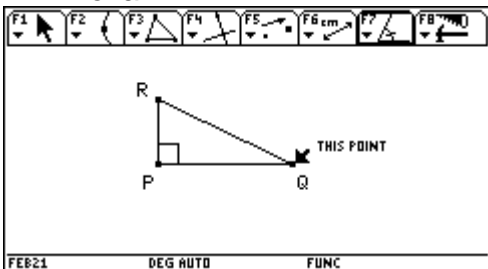
25. Second point, the vertex



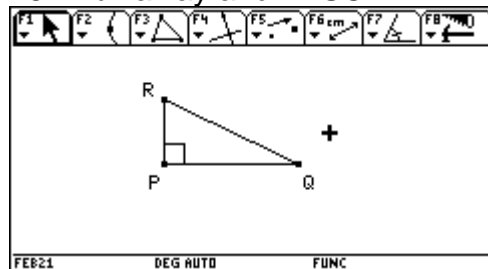
26. Third point



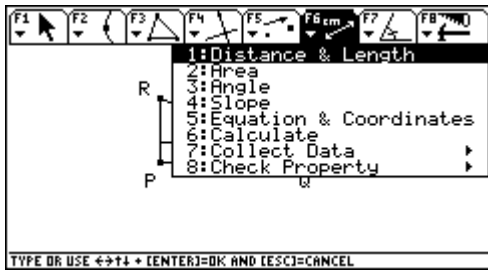
27. Voila!



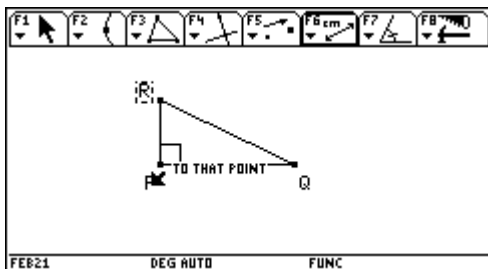
28. Pull away and <ESC>



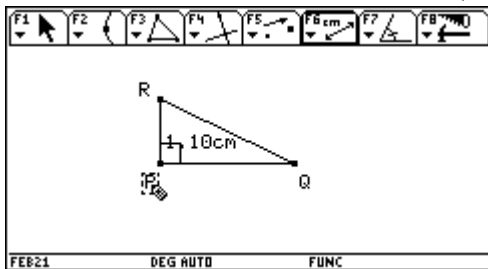
29. Now let's measure the legs and check Pythagoras' theorem. F6 1:



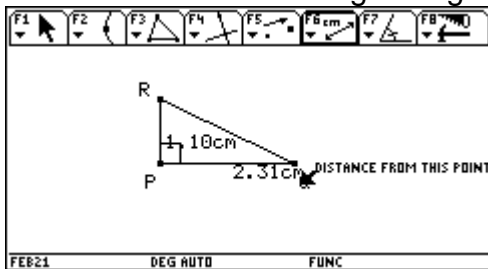
31. Then to point P, or label P, and it says "TO THAT POINT"



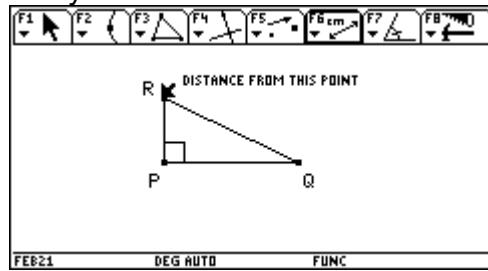
33. So let's continue to measure the lengths of the sides of the triangle. Press <ENTER> to measure PQ.



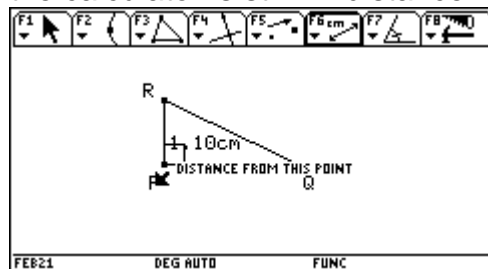
35. Press <ENTER> to get length of PQ



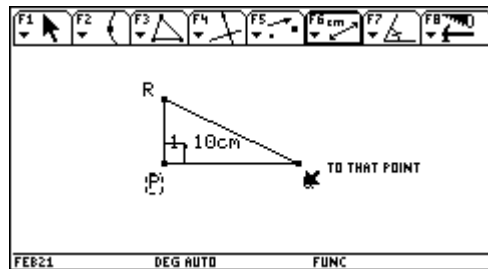
30. To measure the sides you must measure from vertex to vertex. Point at R <ENTER> until it says "DISTANCE FROM THIS POINT"



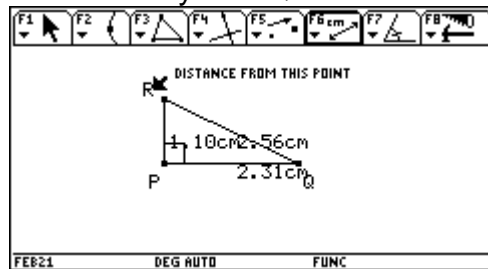
32. Your result will most likely be different from mine. That is OK and expected. Notice the calculator is still in "distance" mode



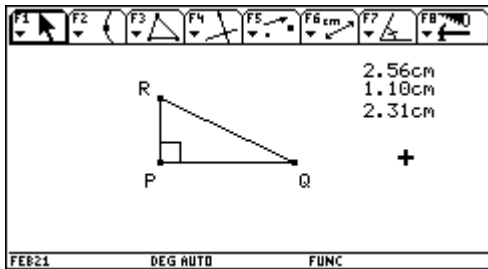
34. Now to vertex Q, make sure it says "TO THAT POINT"



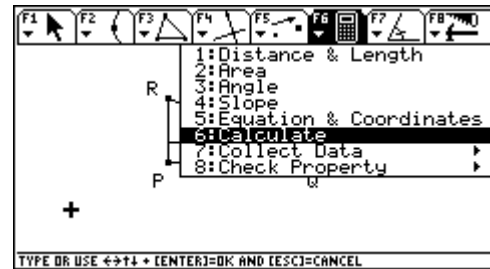
36. Similarly find QR



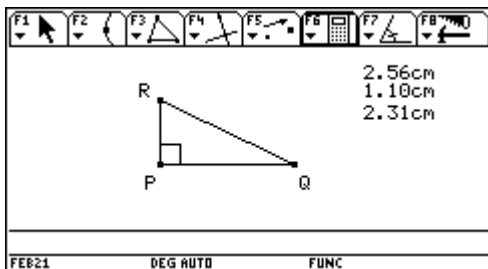
37. Pull away and <ESC> Then "grab" the length of each side and pull it to one as shown here:



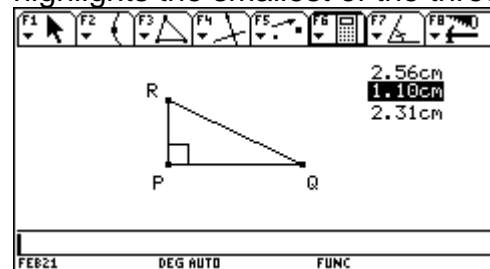
38. Now let's compute the squares of each side of the triangle. F6 6: Calculate



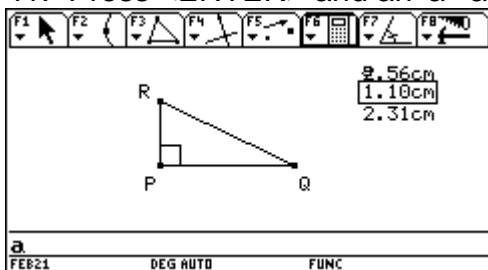
39. Notice the "calculate" bar along the bottom of the screen:



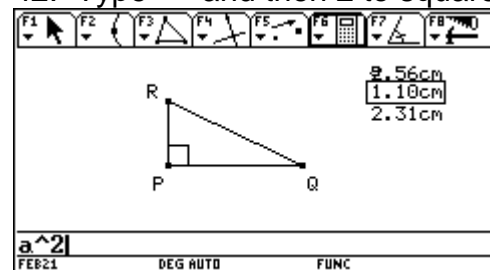
40. Here is where it is a bit "tricky". Press the top of the cursor wheel once and it should "highlight" one of the numbers. Do it until it highlights the smallest of the three numbers.



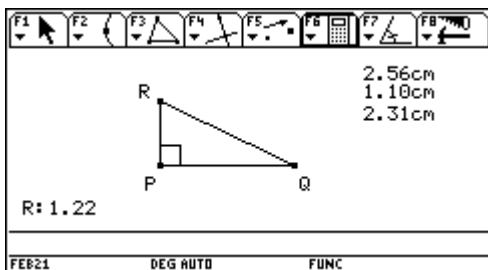
41. Press <ENTER> and an 'a' appears



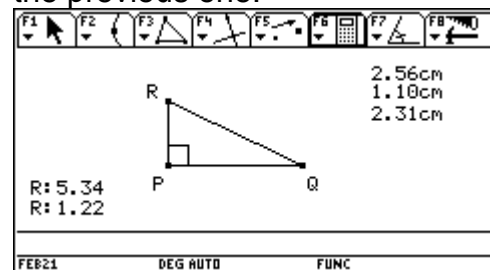
42. Type '^' and then 2 to square 'a'



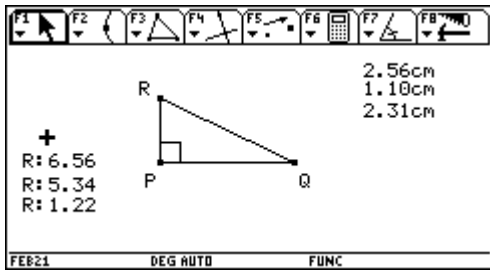
43. Press <ENTER> and the result 'R' appears:



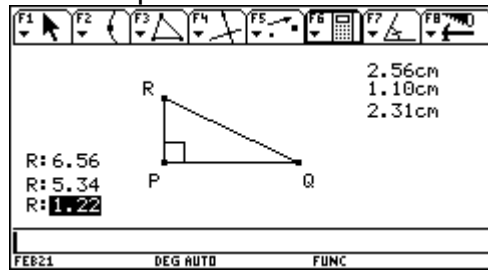
44. Do the same to square the next larger number. It is important to note that it puts the most recent result above the previous one:



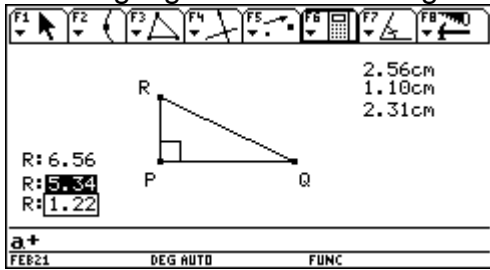
45. Now compute the square of the hypotenuse:



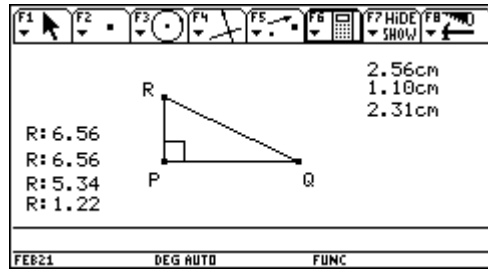
46. We are now ready to check the theorem of Pythagoras. F6 6: and highlight the smallest of the "squared" numbers:



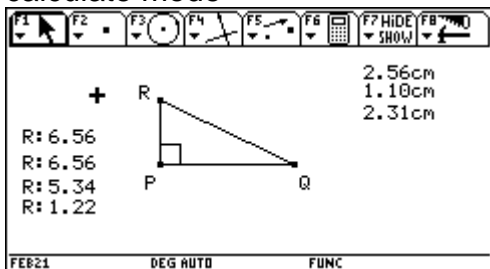
47. Press <ENTER>. Type a '+' sign. Then highlight the second largest squared



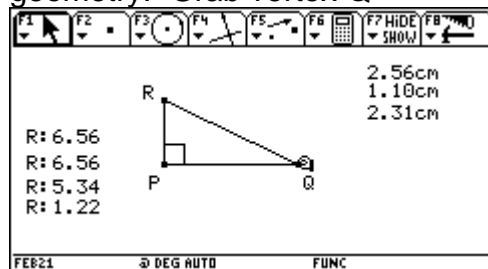
48. Then press <ENTER>



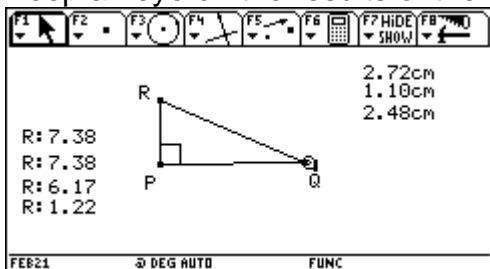
49. Press <ESC> to get out of calculate mode



50. Now for the power of interaction geometry. Grab vertex Q



51. And "pull" Q to stretch segment PQ. Keep an eye on the results of the "squares"



52. Continue

