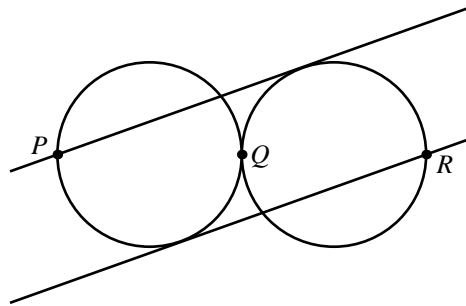
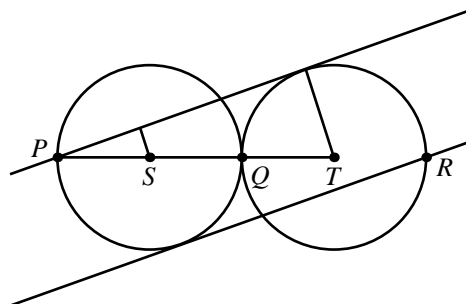


**Friday, October 03, 2014**

Two circles of radius 1 are tangent to each other at point  $Q$ .  $PQ$  and  $QR$  are diameters of the two circles. From  $P$  a tangent is drawn to the circle with diameter  $QR$ , and from  $R$  a parallel tangent is drawn to the circle with diameter  $PQ$ . Find the distance  $d$  between two tangent lines.



**Solution.** The distance is  $\frac{4}{3}$ . Let  $S$  and  $T$  be the centers of the circles. The perpendicular distance from  $T$  to the upper tangent line is 1, and its distance from the lower tangent line is the same as that from  $S$  to the upper tangent line. This distance is  $\frac{1}{3}$ , by similar triangles, so  $d = \frac{4}{3}$ .



Good Luck! Have fun and enjoy Mathematics!