The circle $c_1$ has radius 4 and is tangent to the line $\ell$ with point of tangency $R$.
The circle $c_2$ has radius 9, is tangent to $c_1$, and is tangent to $\ell$ with point of tangency $S$.
The circle $c_3$ is tangent to the circles $c_1$ and $c_2$, and is tangent to $\ell$ with point of tangency $T$, with $T$ in between $R$ and $S$.
See the picture on the right. (It is not drawn to scale.)

Let $r$ be the radius of the circle $c_3$. In this problem, we are going to compute $r$.

Answer:

a) Compute $|RS|$ (the length of $RS$).

b) There exists a number $c$ such that $|RT|^2 = c \cdot r$.

Compute $c$.

c) Compute $r$. 