59. (a) There are six legs, and the vertical component of the tension force in each leg is $T \sin\theta$ where $\theta = 40°$. For vertical equilibrium (zero acceleration in the y direction) then Newton's second law leads to

$$6T \sin\theta = mg \quad \Longrightarrow \quad T = \frac{mg}{6 \sin\theta}$$

which (expressed as a multiple of the bug's weight mg) gives roughly $0.26mg$ for the tension.

(b) The angle θ is measured from horizontal, so as the insect "straightens out the legs" θ will increase (getting closer to 90°), which causes $\sin\theta$ to increase (getting closer to 1) and consequently (since $\sin\theta$ is in the denominator) causes T to decrease.