

43 (a) $f(3) = 0.585(3)^2 = 5.265$, the actual height of the hill is $96 + 5.265 \approx 101.3$ feet.

(b) Two sides of the triangle are 3 miles = 15,840 feet in length and the third side is 5.265 feet in length.

From the law of cosines:

$$5.265^2 = 15,840^2 + 15,840^2 - 2(15,840)(15,840)\cos\theta \Rightarrow \theta = \cos^{-1}\left(\frac{5.265^2 - 2(15,840^2)}{-2(15,840^2)}\right) \approx 0.01904^\circ$$

The correction angle is about 0.019° .