

61. After 2 hours the ships have traveled distances $d_1 = 40$ mi and $d_2 = 56$ mi. The subtended angle is $180^\circ - 32^\circ - 42^\circ = 106^\circ$. Let d be the distance between the two ships in miles. Then by the Law of Cosines $d^2 = 40^2 + 56^2 - 2(40)(56) \cdot \cos 106^\circ \approx 5970.855 \quad \Leftrightarrow \quad d \approx 77.3$ miles.