5.1 The Law of Cosines

4. Answer:
   - First, find AB.
   - $AB^2 = 14.2^2 + 15^2 - 2 \cdot 14.2 \cdot 15 \cdot \cos 37.4° \rightarrow AB = 9.4$
   - $\sin 23.3° = \frac{AD}{9.4} \rightarrow AD = 3.7$.
5. Answer:
   - $\angle HJI = 180° - 96.3° = 83.7°$ (these two angles are a linear pair).
   - $6.7^2 = HJ^2 + 1.9^2 - 2 \cdot HJ \cdot 1.9 \cdot \cos 83.7°$.
   - This simplifies to the quadratic equation $HJ^2 - 0.417HJ - 41.28$.
   - Using the quadratic formula, we can determine that $HJ \approx 6.64$.
   - So, since $HJ + JK = HK, HK \approx 6.64 + 3.6 \approx 10.24$.