Sine/Cosine Rule in Context Solutions

1. (i) 613m
   (ii) 449m
   (iii) 142 seconds
   (iv) 579m
   (v) 104 seconds.

2. $x = 296$m

3. (i) 147km
   (ii) 175km

4. (i) Sine rule shows that the $\sin \alpha = 1.94$, which is impossible as the sine function is bounded by ± 1.
   (ii) Swap the planks, so that $\sin \alpha = .48$, which is OK.

5. (i) $(2x)^2 = (x + 2)^2$.... (ii) $x = 1.54$, take the positive answer as x is a positive distance.