3. \[ \sin 13^\circ = \frac{\text{opp.}}{1''} \quad \cos 13^\circ = \frac{\text{adj}}{1''} \]
\[ \text{opp.} = 0.225'' \quad \text{adj} = 0.974'' \]

4. \[ \cos 45^\circ = \frac{10'}{L} \quad \text{or} \quad \sin 45^\circ = \frac{10'}{L} \]
\[ L = 14.1' \quad \frac{14.1\text{ ft}}{2\text{ ft/sec}} = 7\text{ sec.} \]

8. Runway 30 is 300°. The opposite end is 300 - 180 = 120° or 12°.
Runway 35 is 350°. The opposite end is 350 - 180 = 170° or 17°.
For runway 2 the opposite end is 20 or 200°.

9. Wind

\[ \sin 20^\circ = \frac{\text{cross}}{18} \]
\[ 18 \sin 20^\circ = \text{cross} = 6.16 \text{ knots} \]
\[ \text{cross} = 18 \cdot \sin 70^\circ = 16.9 \text{ knots} \]

\[ \text{cross} = 18 \cdot \sin 70^\circ = 17.7 \text{ knots} \]
30/12 has least crosswind.
Pilot should land on runway 30 (towards 300°).

10. I would ride on the plane.

\[ \text{cross} = 24 \sin 30^\circ = 12 \text{ knots} < 15 \text{ knots} \]
Crosswind is within tolerance. Runway 29 is into the wind.

12. \[ 200 \text{ ft} / 5 \text{ ft/sec} = 40 \text{ seconds} \]