Geometry

1. Express these trig ratios as fractions (exact values):
   - a. Sin30
   - b. Cos30
   - c. Tan30
   - d. Sin45
   - e. Cos45
   - f. Tan45
   - g. Sin60
   - h. Cos60
   - i. Tan60

2. If SinA = 9/41, find CosA and TanA.

3. If a 35-foot tree casts a 27-foot shadow, find the angle of elevation to the sun at that time.

4. A 20-foot ladder makes an angle of elevation of 59°, how high up does it reach?

5. What angle of elevation for the ladder in #4 will be necessary for the ladder to reach up 18 feet?

6. An airplane at an altitude of 250 feet, coming in for landing, sights the beginning of the runway at an angle of declination of 23°. How far is the plane from being directly over the start of the runway?

7. If the airplane in #6 also sights the end of the runway at an angle of declination of 6°, what is the length of the runway?

8. An observer three miles from the launching of a space shuttle observes the shuttle at an angle of elevation of ten degrees. How many feet high is the shuttle at that time? (Note: 1 mile = 5280 feet.)