Directions: Show your work, organize, and write clearly.

1. Solve the equation in the interval $0 \leq x < 2\pi$.
   
   (a) $\tan^2(x) - \sec(x) = 1$
   (b) $\sec^2(x) = 1 - \tan(x)$
   (c) $\cot^2(x) + \csc(x) = 1$
   (d) $1 - \cos(x) = 2\sin^2(x)$
   (e) $4 + 5\sin(x) = 2\cos^2(x)$
   (f) $2\sin^2(x) + 3\cos(x) = 0$

2. Solve the equation.
   
   (a) $2^{3x} = 16$
   (b) $2^{3x} = 14$
   (c) $10^{4x+1} = 12$
   (d) $3^{2x-\frac{1}{2}} = 10$
   (e) $5^{\frac{x}{2} + \frac{1}{4}} = 8$
   (f) $e^{2x - 7} = 6$
   (g) $e^{9 + \frac{x}{2}} = \frac{1}{4}$
   (h) $7^{x+1} = 2^{3x}$
   (i) $4^{5x} = 6^{2x-1}$