1. Which of the following are addressed when determining the strength of a compression member?
   a. Yielding
   b. Elastic buckling
   c. Inelastic buckling
   d. b and c
   e. a, b, and c

2. The effective length can be an important factor in determining column strength. Which of the following is true for a column with length, $L$, and an effective length factor, $K = 1.0$?
   a. As the column gets longer the effective length factor gets larger
   b. As the column gets longer the effective length factor gets smaller
   c. An intermediate brace can increase the effective length factor
   d. An intermediate brace will always result in an effective length factor of 0.5
   e. An intermediate brace will reduce the effective length factor but the amount depends on where the brace is located

3. Determine the critical compressive stress for an A36 column with a slenderness ratio of 120.
   a. 25.6 ksi
   b. 21.6 ksi
   c. 17.5 ksi
   d. 16.9 ksi
   e. 12.2 ksi

4. What would the critical stress be for the column of problem 3 if it were from a material with $F_y = 100$ ksi?
   a. 25.6 ksi
   b. 21.6 ksi
   c. 17.5 ksi
   d. 16.9 ksi
   e. 12.2 ksi
5. A W12x96 A992 column has an effective length, $L_c = 20$ ft, for buckling about both axes. What is the nominal strength of this compression member?
   a. 489 kips  
   b. 543 kips  
   c. 816 kips  
   d. 907 kips  
   e. 1220 kips

6. If the column of problem 5 has its y-axis braced so that $L_{cy} = 10$ ft and $L_{cx}$ remains equal to 20 ft, what is the nominal compression strength?
   a. 489 kips  
   b. 543 kips  
   c. 816 kips  
   d. 910 kips  
   e. 1220 kips

7. A W33x130 A992 column has $L_c = 15$ ft for both axes. The shape has a slender web for compression according to the AISC Manual Table 1-1. Determine the slender element impact by determining the effective area.
   a. 38.3  
   b. 36.4  
   c. 33.0  
   d. 50.5  
   e. 51.7

8. To design a single angle compression member loaded eccentrically, which of the following is true?
   a. The constraints of Manual Table 4-12 must be satisfied.  
   b. This condition is not permitted by the AISC Specification  
   c. This member can only be designed if it is loaded through the same leg at each end.  
   d. a and c only  
   e. None of the above are true

9. Determine the nominal compressive strength of a single L6x6x½ A36 compression member with a length, $L_c$, of 10 ft. It is a web member in a box truss, has no intermediate transverse loads, and is connected by welds through the same leg at each end.
   a. 167 kips  
   b. 107 kips  
   c. 97.5 kips  
   d. 75.8 kips  
   e. None of the above
10. Determine the nominal strength of two 4x3½x½ A36 angles short leg back to back with a gap of 3/8 in. and an effective length, \( L_c \), of 16 ft. These angles are connected every 4 ft with pretensioned bolts.
   a. 30.9 kips
   b. 46.4 kips
   c. 51.6 kips
   d. 81.8 kips
   e. 137 kips