Discuss these with your partner(s)

1. Which of the following sentences are propositions?
   (a) There is a Wheaton College in Norton, Massachusetts.
   (b) There is a Wheaton College in Mansfield, Massachusetts.
   (c) $x = 3x - 4$
   (d) $x = 3x - 4$ if $x = 2$
   (e) How are you doing today?

2. Let p be the statement "Lily has purple hair", q be the statement "Lily is fluent in Spanish"; and r be the statement that "Lily lives in Springfield".
   Express each of the following statements using $\sim, \wedge, \vee$, and the letters given.
   (a) Lily has purple hair and lives in Springfield.
   (b) Lily is fluent in Spanish but does not have purple hair.
   (c) Lily neither has purple hair nor lives in Springfield but is fluent in Spanish.
   (d) Lily either lives in Springfield or has purple hair, but not both.

3. Construct truth tables for each of the following:

   (a) $(p \lor q) \land r$

   (b) The logical expression from 2(d)

4. Use DeMorgan's Laws to negate each of the statements in 2, first in symbolic form, then as sentences