

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) $(p \vee q) \wedge r$

(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