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I pledge my honor that I have abided by the Stevens Honor System.

CS 135 Homework #2

Section 1.4

1.
   a. True
   b. True
   c. False

5.
   a. There is at least one student who spends more than five hours every week day in class.
   b. Every student spends more than five hours every week day in class.
   c. There is at least one student who does not spend more than five hours every weekday in class.
   d. All students do not spend more than five hours every weekday in class.

10.
   a. $\exists x\ (C(x) \wedge D(x) \wedge F(x))$ <- does part a mean one or at least one
   b. $\forall x(C(x)\ \text{v}\ D(x)\ \text{v}\ F(x))$
   c. $\exists x\ (C(x) \wedge F(x) \wedge \neg D(x))$
   d. $\forall x(\neg C(x) \wedge \neg D(x) \wedge \neg F(x))$

14.
   a. True, when x is -1.
      P(x): $x^3 = -1$ P(-1): $(-1)^3 = -1$
   b. True, when x is between 0 and 1 or -1 and 0, not inclusive.
      P(x):$x^4 < x^2$ $P\left(\frac{1}{2}\right)$: $\left(\frac{1}{2}\right)^4 < \left(\frac{1}{2}\right)^2$ $P\left(\frac{1}{2}\right): \frac{1}{16} < \frac{1}{4}$
   c. True for all x in the domain
      $P(x): (-x)^2 = x^2$ $P(1): (-1)^2 = 1^2$
   d. False when x is less than 0
      $P(x): 2x > x$ $P(-3): 2(-3) > -3$ $P(-3): -6 > -3$

Section 1.5

1.
   a. For all x, there is at least one y, where x is less than y to make the statement (x < y) true.