Introduction to Mathematical Thinking
Assignment 2 Solutions

Robin Goyal

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1. (a) $0 < \pi < 10$
   (b) $7 \leq p < 12$
   (c) $5 < x < 7$
   (d) $x < 4$
   (e) $-3 < y < 3$
   (f) $x = 0$

2. (a) Π is greater than 0 and less than 10.
   (b) p is greater than or equal to 7 and less than 12.
   (c) x is greater than 5 and less than 7.
   (d) x is less than 4.
   (e) y is greater than -3 and less than 3.
   (f) x is equal to 0.

3. Check if each and every conjunct is true.

4. Check if any of the conjuncts is false.

5. (a) $\pi > 3$
   (b) $x \neq 0$
   (c) $x \geq 0$
   (d) $x \geq 0$
   (e) $x > 3$

6. (a) Π is greater than 3.
   (b) x does not equal to 0.

    (c) x is greater than or equal to 0.

    (d) x is greater than or equal to 0.

    (e) x is greater than 3.

7. Check if any of the disjuncts is true.

8. Check if all of the disjuncts are false.

9. (a) $x \leq 3.2$

    (b) $x \geq 0$

    (c) $x = 0$

    (d) $x \neq 1$

    (e) ψ

10. (a) Π is less than or equal to 3.2.

    (b) x is greater than or equal to 0.

    (c) x is equal to 0.

    (d) x does not equal to 1.

    (e) Ψ

11. (a) $D \wedge Y$

    (b) $(\neg(Y) \wedge T) \wedge D$

    (c) $\neg(D \wedge Y)$

    (d) $T \wedge \neg(D \wedge Y)$

    (e) $\neg T \wedge (Y \wedge D)$