

HW #2-11 Answers

- ① a) T
b) T
c) F
d) F

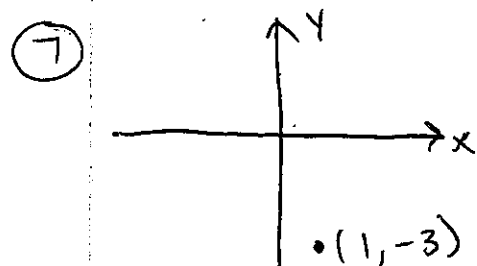
② An animal is a bird

③ converse: $b \rightarrow a$
inverse: $\sim a \rightarrow \sim b$
contrapositive: $\sim b \rightarrow \sim a$

④ False! $x = -4$ is a counterexample.

⑤ if $p \rightarrow q$ and $q \rightarrow r$, then $p \rightarrow r$
(or if $q \rightarrow r$ and $r \rightarrow p$, then $q \rightarrow p$)

⑥ Not valid by either Law of Logic



⑧ If an animal is not an eagle, then it is not a bird.
(* the contrapositive!*)

⑨ converse: If I follow, then you lead.
 inverse: If you do not lead, then I will not follow
 contrapositive: If I do not follow, then you did not lead.

⑩ If 2 angles are vertical, then they are congruent

⑪ 2 angles are supplementary if and only if their measures add to 180° .

⑫ $x^2 - 6 + 3x + 6 = 180$ *linear pair post.*

$$x^2 + 3x - 180 = 0$$

$$(x+15)(x-12) = 0$$

$$x+15=0$$

$$x-12=0$$

$$\cancel{x=-15}$$

$$\boxed{x=12}$$

↑
 extraneous! makes one angle negative when you plug back in!

⑬ $x^2 + 1 = 4x + 3 + 2x - 2$ *seg. add. post *

$$x^2 + 1 = 6x + 1$$

$$x^2 = 6x$$

$$x^2 - 6x = 0$$

$$(x-6)(x) = 0$$

$$x-6=0 \quad \cancel{x=0}$$

$$\boxed{x=6}$$

⑭ $AB = CD$
 $2x - 1 = x + 7$
 $x = 8$

⑮ $\frac{1}{5}x + 3 = 2x - 24$
 $\frac{1}{5}x = 2x - 27$
 $\cancel{8}x = 10x - 135$
 $-9x = -135$
 $x = 15$

given equation
 subtract. prop. =
 mult. prop. =
 subtract. prop. =
 div. prop. =

- ⑯
- (2) yes
 - (3) yes
 - (4) yes
 - (5) yes
 - (6) No