1. (2pts) Write the negation of each of the following statements:

Corn is grown by someone who is not a firmer !

a. Some farmer grows only corn.

no farmer grows only corn.

b. Corn is grown only by farmers.

- 1. (2pts) Write the negation of each of the following statements:
 - a. Some farmer grows only corn.

Wo Farmer grows only com

b. Corn is grown only by farmers.

Some com is not grown by farmers.

1. (2pts) Write the negation of each of the following statements:

a. Some farmer grows only corn.

All farmers don't grow only corn.

b. Corn is grown only by farmers.

Thre is something, such that it's not a farmer, and it grove corn.

1. (2pts) Write the negation of each of the following statements:

(Yx) Fox -> Cur

b. Corn is grown only by farmers.

a. Some farmer grows only corn.

(3x) [Fas A (as)]

C(x) - x gras corn.

Good

(∀x)[Cao → fan] (∃x) [Cao ∧ Fan]

Uell done

- 1. (2pts) Write the negation of each of the following statements:
 - a. Some farmer grows only corn.

All farmer grows not only com

b. Corn is grown only by farmers.

The some com is not grown by farmers

- 2. (3pts) Using the following predicate symbols, in the domain of "the whole world", write each English language statement as a predicate wff:
 - C(x): x is a Corvette
 - F(x): x is a Ferrari
 - P(x): x is a Porsche
 - S(x,y): x is slower than y
 - a. Nothing is both a Corvette and a Ferrari.

(Yx)[C(x) A F(x)]

b. Some Porsches are slower than no Corvette.

V(3x)[P(x) ∧ (Vy)[S(x,y) → C(y)']]

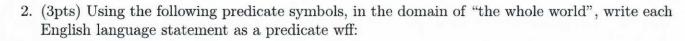
c. If there is a Corvette that is slower than a Ferrari, then all Corvettes are slower than all Ferraris.

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(
$$\forall x$$
)[($(x) \land F(x)$]' or ($\forall x$)[($(x) \lor F'(x)$]

b. Some Porsches are slower than no Corvette.

c. If there is a Corvette that is slower than a Ferrari, then all Corvettes are slower than all Ferraris.

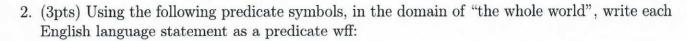


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a. Nothing is both a converte and $\forall x \in C(x) \Rightarrow F(x)$

b. Some Porsches are slower than no Corvette.

In part of screen are slower than no corvette.

In part part of the control of th

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3x[COSA 3,(FG)] > 4x [60 = 4x[FC) > S(x,y)]

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$$\exists (N) [(C(N) \land \exists (N) [F(N) \land S(X,N)]] \rightarrow \forall (X) \forall (X) \forall (X) \exists (X,X) \exists$$

3. (5pts) Prove (with reasons), or give an interpretation in which it is false:

$$(\forall y) \left[Q(x,y) \longrightarrow P(x) \right] \Longrightarrow \left[(\exists y) \: Q(x,y) \rightarrow P(x) \right]$$

[,
$$(\forall g)[Q(x_{19}) \rightarrow P(x)]$$
 hyp
2. $(\exists g)Q(x_{19})$ Jeduction medical V
3. $Q(x, g)$ 2, e:
4. $(Q(x, g) \rightarrow P(x))$ 1, V :
5. $P(x)$ 3,4,MP Well

done

3. (5pts) Prove (with reasons), or give an interpretation in which it is false:

$$(\forall y) \left[Q(x,y) \longrightarrow P(x) \right] \Longrightarrow \left[(\exists y) \, Q(x,y) \to P(x) \right]$$

N. re Work 3. (5pts) Prove (with reasons), or give an interpretation in which it is false: