Pol Mejia

12.3

Check Your Proof:

Proof: Repository - hw12.3

Construct a proof for the argument: $\forall xFx \therefore \forall y(Fy \wedge Fy)$

1	$\forall xFx$	
2	Fa	Universal instantiation 1
3	Fa	Repeat 2
4	$Fa \wedge Fa$	Adjunction 2, 3
5	$\forall y(Fy \wedge Fy)$	Universal derivation 4

new line | new subproof

☺ Congratulations! This proof is correct.

check proof | start over

12.4

Check Your Proof:

Proof: Repository - hw12.4

Construct a proof for the argument: $\forall x(Fx \leftrightarrow Gx), Fa \wedge \exists xHxa \therefore \exists xGx$

1	$\forall x(Fx \leftrightarrow Gx)$	
2	$Fa \wedge \exists xHxa$	
3	Fa	Simplification 2
4	$Fa \leftrightarrow Ga$	Universal instantiation 1
5	Ga	Equivalence 3, 4
6	$\exists xGx$	Existential generalization 5

new line | new subproof

☺ Congratulations! This proof is correct.

check proof | start over

Pol Mejia

12.5

Check Your Proof:

Proof: Repository - hw12.5

Construct a proof for the argument: $\therefore \forall y \exists x(Fy \rightarrow Fx)$

1	Fa	
2	Fa	Repeat 1
3	$Fa \rightarrow Fa$	Conditional derivation 1–2
4	$\exists x(Fa \rightarrow Fx)$	Existential generalization 3
5	$\forall y \exists x(Fy \rightarrow Fx)$	Universal derivation 4

new line new subproof

☺ Congratulations! This proof is correct.

check proof start over

12.6

Check Your Proof:

Proof: Repository - hw12.6

Construct a proof for the argument: $\exists xHx$, $\forall x(Gx \rightarrow Fx)$, $\forall x(Hx \rightarrow Gx) \therefore \exists x(Hx \wedge Fx)$

1	$\exists xHx$	
2	$\forall x(Gx \rightarrow Fx)$	
3	$\forall x(Hx \rightarrow Gx)$	
4	Hb	
5	$(Hb \rightarrow Gb)$	Universal instantiation 3
6	$Gb \rightarrow Fb$	Universal instantiation 2
7	Gb	Modus Ponens 4, 5
8	Fb	Modus Ponens 6, 7
9	$Hb \wedge Fb$	Adjunction 4, 8
10	$\exists x(Hx \wedge Fx)$	Existential generalization 9
11	$\exists x(Hx \wedge Fx)$	Existential instantiation 1, 4–10

new line new subproof

☺ Congratulations! This proof is correct.

check proof start over