Problem 7.5

Given $\forall x.(p(x) \Rightarrow q(x))$ and $\exists x.p(x)$, use the Fitch system to prove $\exists x.q(x)$.

To apply a rule of inference, check the lines you wish to use as premises and click the button for the rule of inference. Reiteration allows you to repeat an earlier item. To delete one or more lines from a proof, check the desired lines and click Delete.

Whenever entering expressions, use Ascii characters only. Use ~ for $\neg$; use & for $\wedge$; use | for $\vee$; use => for $\Rightarrow$; use `A` for $\forall$; use `E` for $\exists$; and use : for . in quantified sentences. Also, for variables use strings of alphanumeric characters that begin with a capital letter. For example, to write the sentence $\forall x.\exists y.(p(x) \wedge q(y) \Rightarrow r(y) \wedge \neg s(y))$, write `AX:EY:(p(X)&q(Y)=>r(Y)|~s(Y))`.

Proof Editor		
1.	AX:(p(X) => q(X))	Premise
2.	EX:p(X)	Premise
3.	p(X)	Assumption
4.	p(X) => q(X)	Universal Elimination: 1
5.	q(X)	Implication Elimination: 4, 3
6.	EX:q(X)	Existential Introduction: 5
7.	p(X) => EX:q(X)	Implication Introduction: 6
8.	AX:(p(X) => EX:q(X))	Universal Introduction: 7
9.	EX:q(X)	Existential Elimination: 2, 8
Goal	EX:q(X)	Complete Submit

Assumption | Negation Introduction | Implication Introduction | Universal Introduction

Reiteration | Negation Elimination | Implication Elimination | Universal Elimination

Delete

And Introduction

And Elimination

Or Introduction

Or Elimination

Biconditional Introduction

Biconditional Elimination

Existential Introduction

Existential Elimination

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