

stamps_sfa THM

⊢ $\forall i:\{8\dots\}. \exists m,n:\mathbb{N}. 3\cdot m+5\cdot n = i$ by NSubsetInd Concl

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|basecase

| 1. $i : \mathbb{Z}$

| 2. $0 < i$

| 3. $8 = i$

| ⊢ $\exists m,n:\mathbb{N}. 3\cdot m+5\cdot n = i$ by Witness: 1 | 1

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|upcase

| 1. $i : \mathbb{Z}$

| 2. $8 < i$

| 3. $\exists m,n:\mathbb{N}. 3\cdot m+5\cdot n = i-1$

| ⊢ $\exists m,n:\mathbb{N}. 3\cdot m+5\cdot n = i$ by ExistHD Hyp:-1

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| 3. $m : \mathbb{N}$

| 4. $n : \mathbb{N}$

| 5. $3\cdot m+5\cdot n = i-1$

| ⊢ $\exists m,n:\mathbb{N}. 3\cdot m+5\cdot n = i$ by Decide: $n = 0$

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| 6. $n = 0$

| ⊢ $\exists m,n:\mathbb{N}. 3\cdot m+5\cdot n = i$ by $m \geq 3$ Asserted

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| 7. $m \geq 3$

| ⊢ $\exists m,n:\mathbb{N}. 3\cdot m+5\cdot n = i$ by Witness: $m-3$ | $n+2$

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| 6. $\neg n = 0$

| ⊢ $\exists m,n:\mathbb{N}. 3\cdot m+5\cdot n = i$ by Witness: $m+2$ | $n-1$

END