Newtheorem and theoremstyle test

recreated with the Pandoc Statement filter

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1 Test of standard theorem styles

Ahlfors' Lemma gives the principal criterion for obtaining lower bounds on the Kobayashi metric.

Ahlfors' Lemma. *Let* $ds^2 = h(z)|dz|^2$ *be a Hermitian pseudo-metric on* $\mathbf{D}_r$*,* $h \in C^2(\mathbf{D}_r)$*, with* ω *the associated* $(1,1)$*-form. If* $\operatorname{Ric}\omega \geq \omega$ *on* $\mathbf{D}_r$*, then* $\omega \leq \omega_r$ *on all of* $\mathbf{D}_r$ *(or equivalently,* $ds^2 \leq ds_r^2$*).*

Lemma 1.1 (negatively curved families)**.** *Let* $\{ds_1^2, \dots, ds_k^2\}$ *be a negatively curved family of metrics on* $\mathbf{D}_r$*, with associated forms* ω^1*, ...,* ω^k*. Then* $\omega^i \leq \omega_r$ *for all* i*.*

Then our main theorem:

Theorem 1.2. *Let* $d_{\max}$ *and* $d_{\min}$ *be the maximum, resp. minimum distance between any two adjacent vertices of a quadrilateral* Q*. Let* σ *be the diagonal pigspan of a pig* P *with four legs. Then* P *is capable of standing on the corners of* Q *iff*

$$\sigma \geq \sqrt{d_{\max}^2 + d_{\min}^2}.$$

Corollary 1.3. *Admitting reflection and rotation, a three-legged pig* P *is capable of standing on the corners of a triangle* T *iff 1.1 holds.*

Remark. *As two-legged pigs generally fall over, the case of a polygon of order* 2 *is uninteresting.*

2 Custom theorem styles

Exercise 1: *Generalize Theorem 1.1 to three and four dimensions.*

Note 1*:* This is a test of the custom theorem style `note`. It is supposed to have variant fonts and other differences.

B-Theorem 1. *Test of the 'linebreak' style of theorem heading.*

This is a test of a citing theorem to cite a theorem from some other source.

(Theorem 3.6 in Dummy (1900))**.** *. No hyperlinking available here yet but that's not a bad idea for the future.*

3 The proof environment

Proof. Here is a test of the proof environment.

□

Proof of Theorem 1.1. And another test.

□

Proof of necessity*.* And another.

□

Proof of sufficiency*.* And another, ending with a display:

$$1 + 1 = 2\,. \qquad \square$$

4 Test of number-swapping

This is a repeat of the first section but with numbers in theorem heads swapped to the left. *Markdown: not possible to define swapnumbers on a per-theorem basis.*

Ahlfors' Lemma gives the principal criterion for obtaining lower bounds on the Kobayashi metric.

Ahlfors' Lemma. *Let $ds^2 = h(z)|dz|^2$ be a Hermitian pseudo-metric on $\mathbf{D}_r$, $h \in C^2(\mathbf{D}_r)$, with ω the associated $(1,1)$-form. If $\operatorname{Ric}\omega \geq \omega$ on $\mathbf{D}_r$, then $\omega \leq \omega_r$ on all of $\mathbf{D}_r$ (or equivalently, $ds^2 \leq ds_r^2$).*

Lemma 4.1 (negatively curved families)**.** *Let $\{ds_1^2, \dots, ds_k^2\}$ be a negatively curved family of metrics on $\mathbf{D}_r$, with associated forms ω^1, ..., ω^k. Then $\omega^i \leq \omega_r$ for all i.*

Then our main theorem:

Theorem 4.2. *Let $d_{\max}$ and $d_{\min}$ be the maximum, resp. minimum distance between any two adjacent vertices of a quadrilateral Q. Let σ be the diagonal pigspan of a pig P with four legs. Then P is capable of standing on the corners of Q iff*

$$\sigma \geq \sqrt{d_{\max}^2 + d_{\min}^2}.$$

Corollary 4.3. *Admitting reflection and rotation, a three-legged pig P is capable of standing on the corners of a triangle T iff 1.1 holds.*

Remark. *As two-legged pigs generally fall over, the case of a polygon of order* 2 *is uninteresting.*

References

Dummy, D. 1900. "Dummy Reference." *Journal* 1 (1): 1–10. https://doi.org/10.1038/171737a0.