

問題

長方形の紙（A4判）を数学的に三等分せよ

※ 横置きの場合 縦：横 = $1 : \sqrt{2}$

たけしのコマ大数学科 DVDBOX

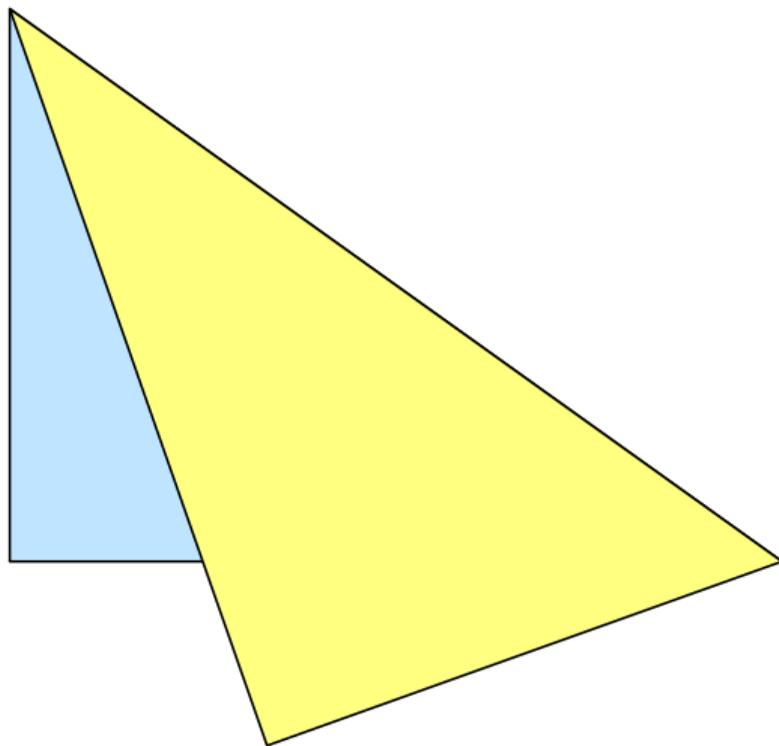
6限目、問②⑧、三つ折り

※ 折り目を付けて、正確に三等分に折ってください

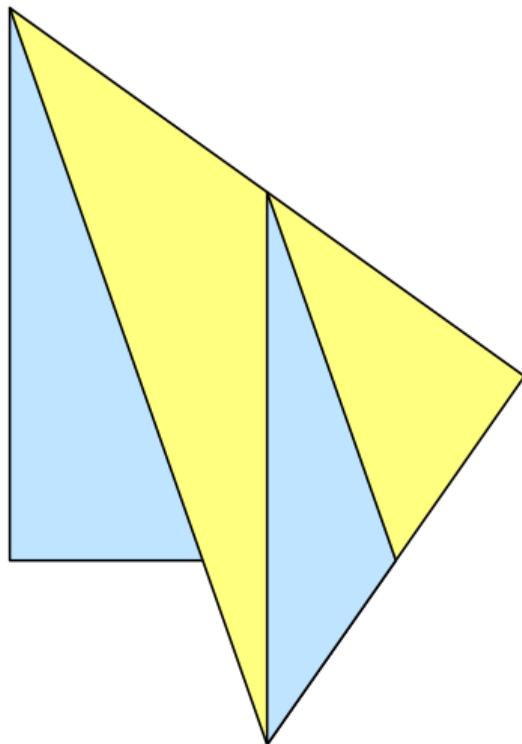
解答



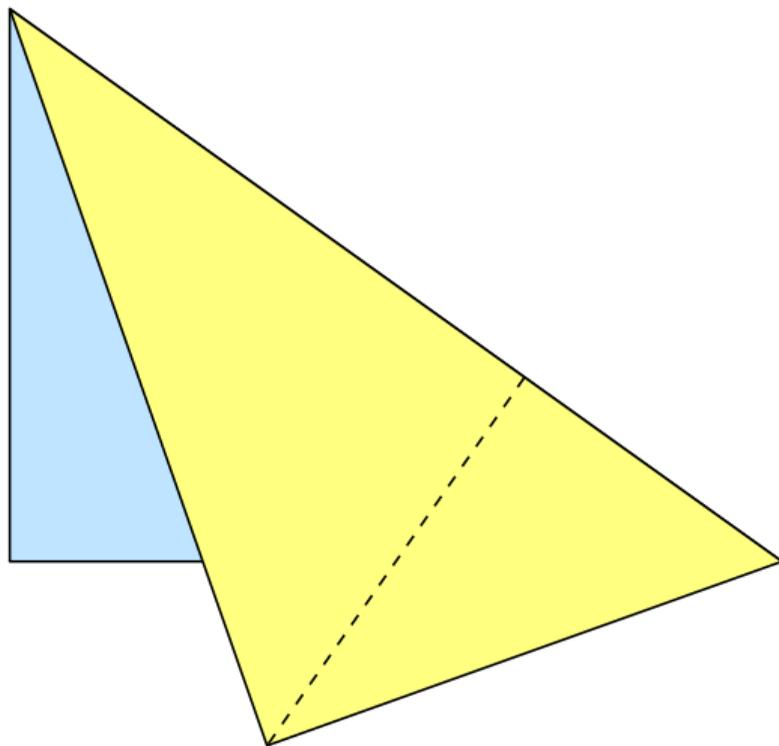
解答



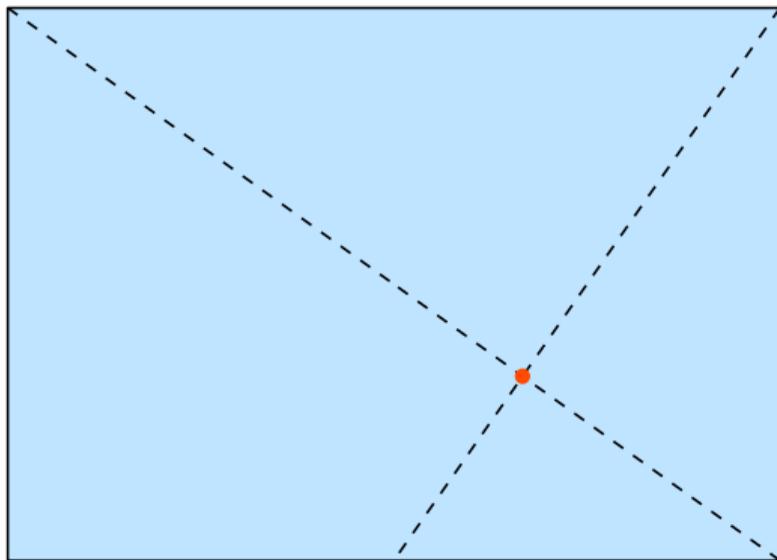
解答



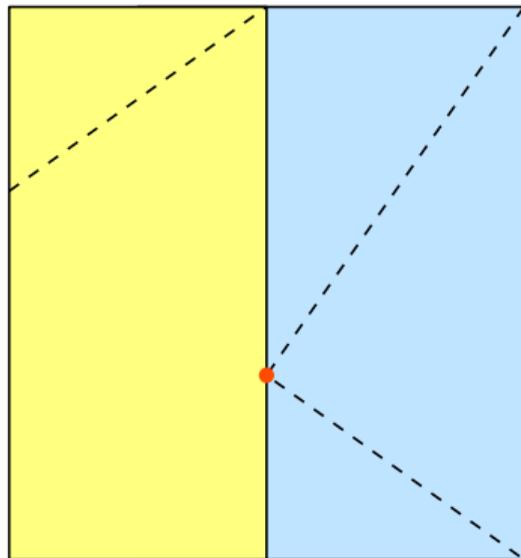
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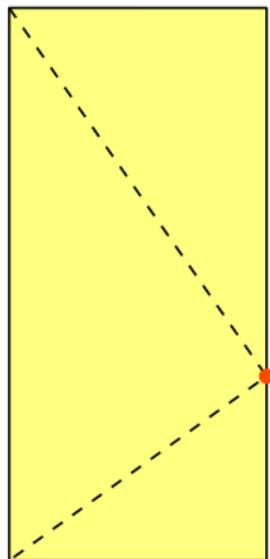
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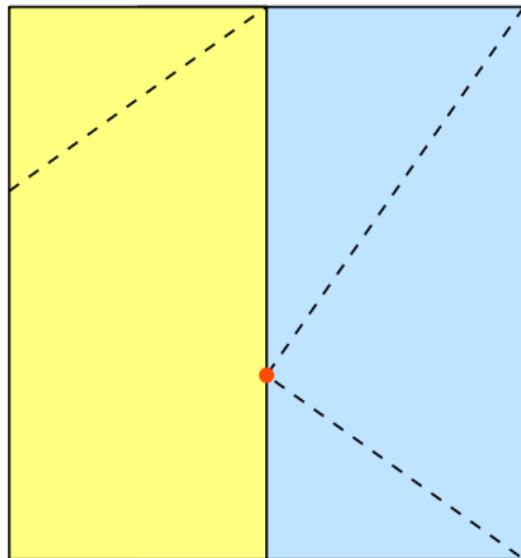
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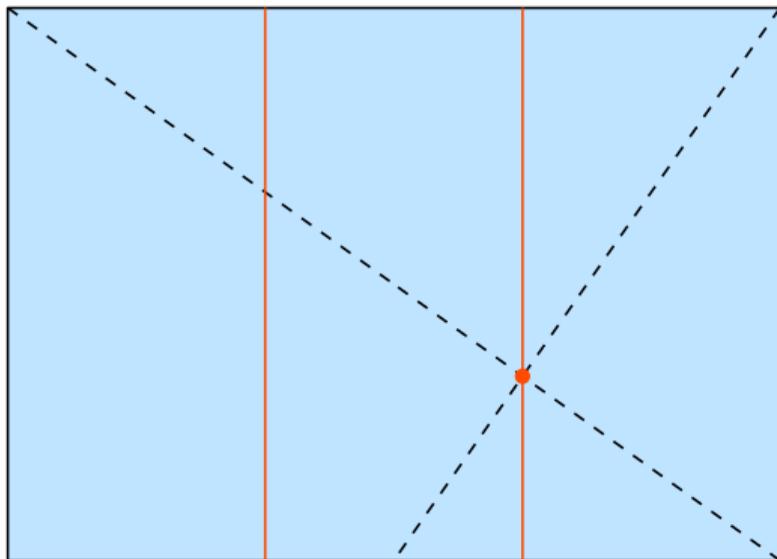
解答



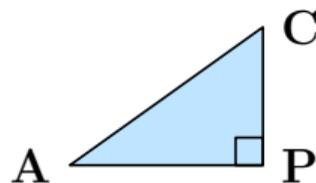
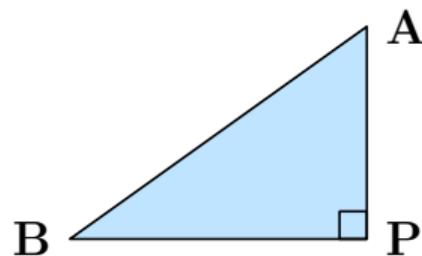
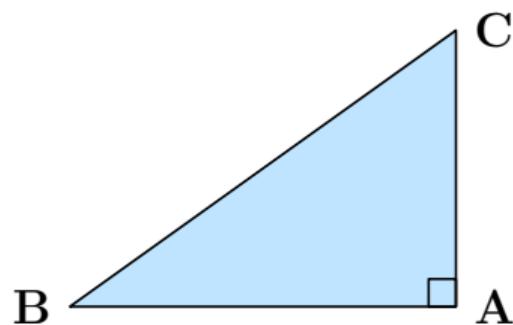
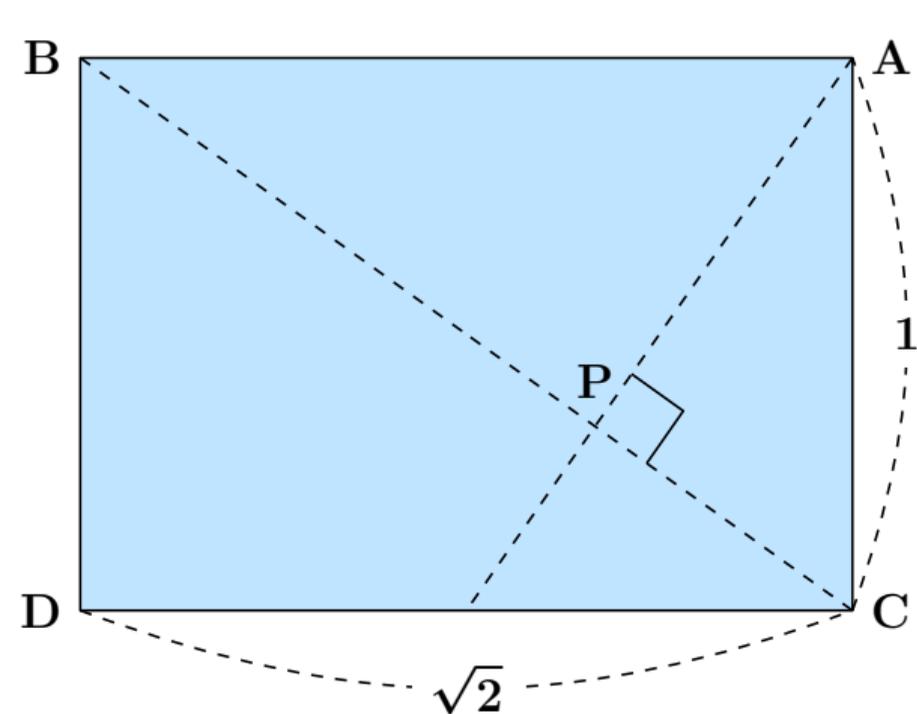
解答



解答



解説 相似の三角形に注目します



解説 相似の三角形に注目します

$BP : AB = AB : BC$ より

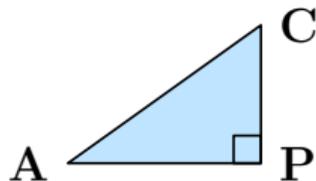
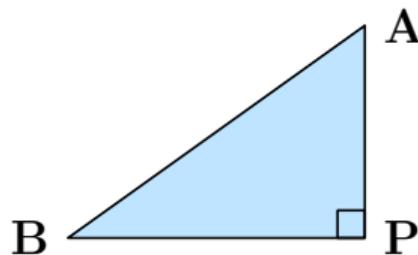
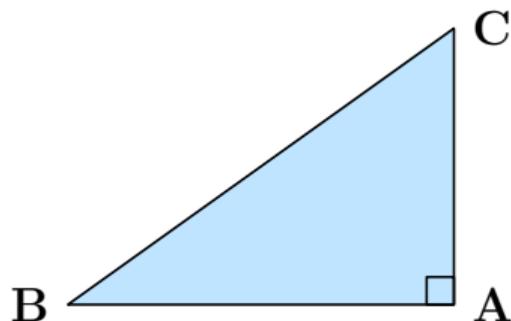
$$BP \times BC = AB^2$$

$$BP = \frac{AB^2}{BC}$$

$CP : AC = AC : BC$ より

$$CP \times BC = AC^2$$

$$CP = \frac{AC^2}{BC}$$



解説 相似の三角形に注目します

$$BP : AB = AB : BC \text{より}$$

$$BP \times BC = AB^2$$

$$BP = \frac{AB^2}{BC}$$

$$CP : AC = AC : BC \text{より}$$

$$CP \times BC = AC^2$$

$$CP = \frac{AC^2}{BC}$$

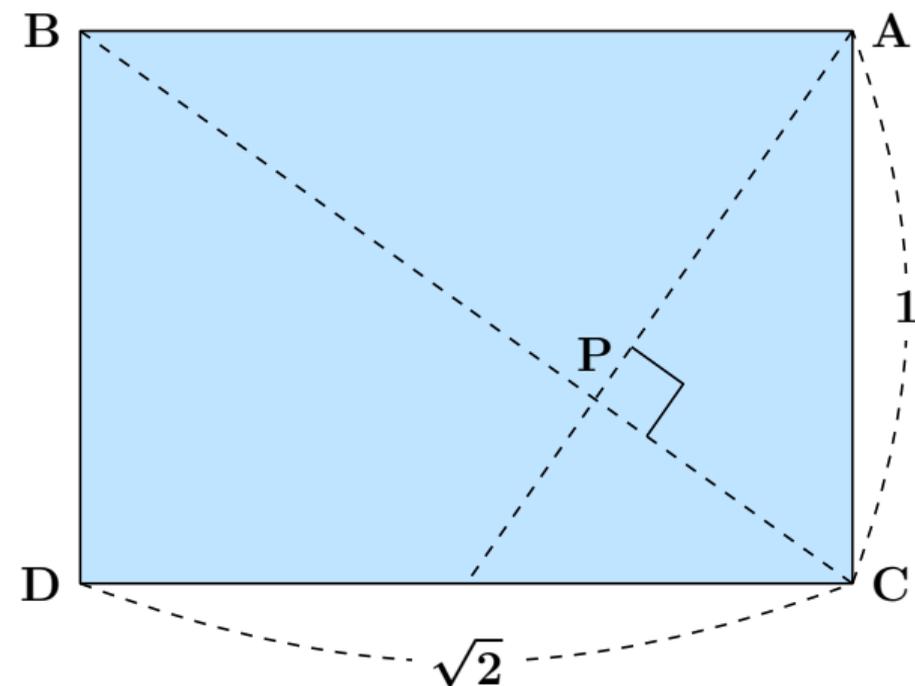
$$BP : CP = \frac{AB^2}{BC} : \frac{AC^2}{BC}$$

$$= AB^2 : AC^2$$

$$= \sqrt{2}^2 : 1^2$$

$$= 2 : 1$$

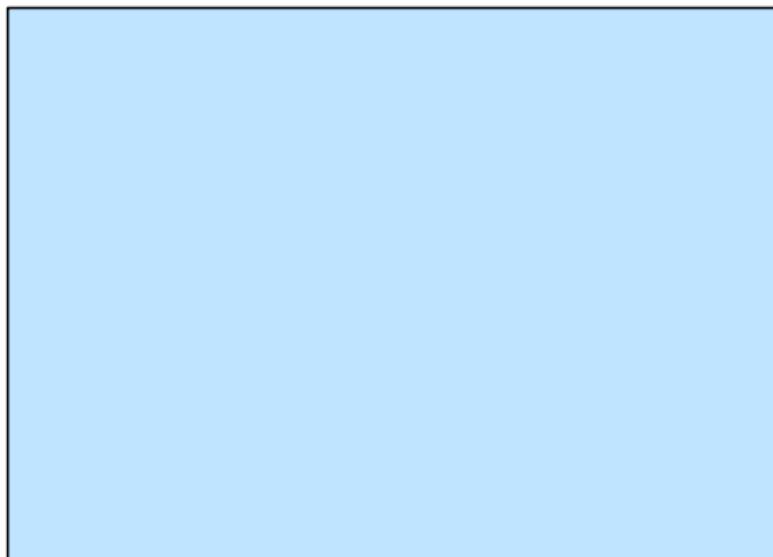
解説 相似の三角形に注目します



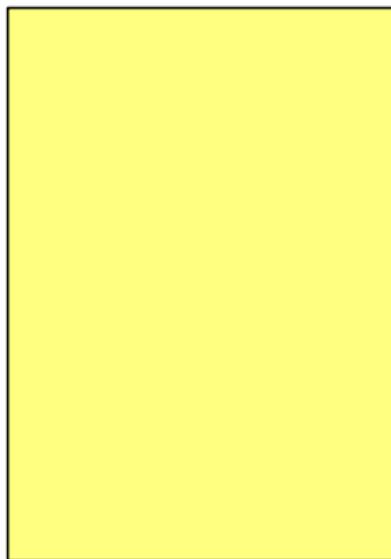
$$\begin{aligned}BP : CP &= \frac{AB^2}{BC} : \frac{AC^2}{BC} \\ &= AB^2 : AC^2 \\ &= \sqrt{2}^2 : 1^2 \\ &= 2 : 1\end{aligned}$$

縦横比 $1 : \sqrt{2}$ のときしか使えません

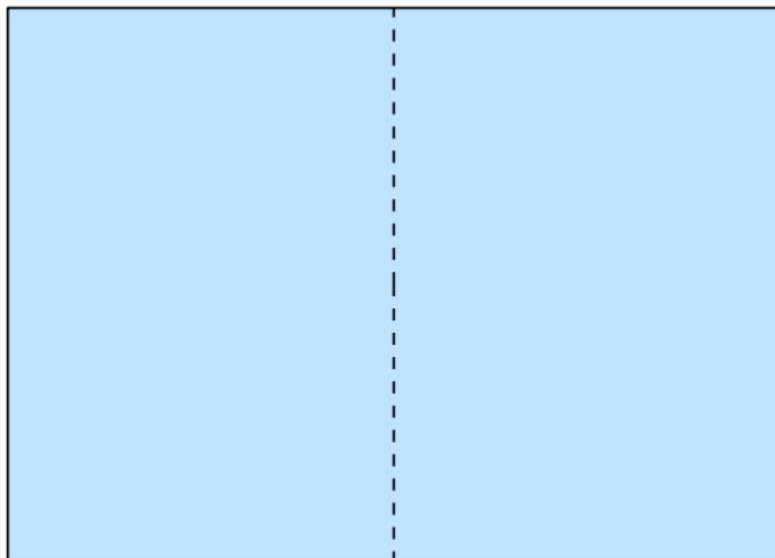
三つ折り 別解 1



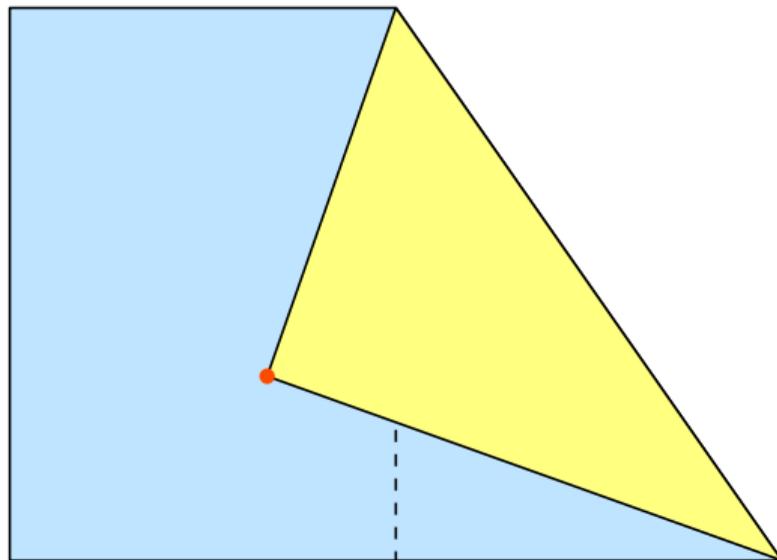
三つ折り 別解 1



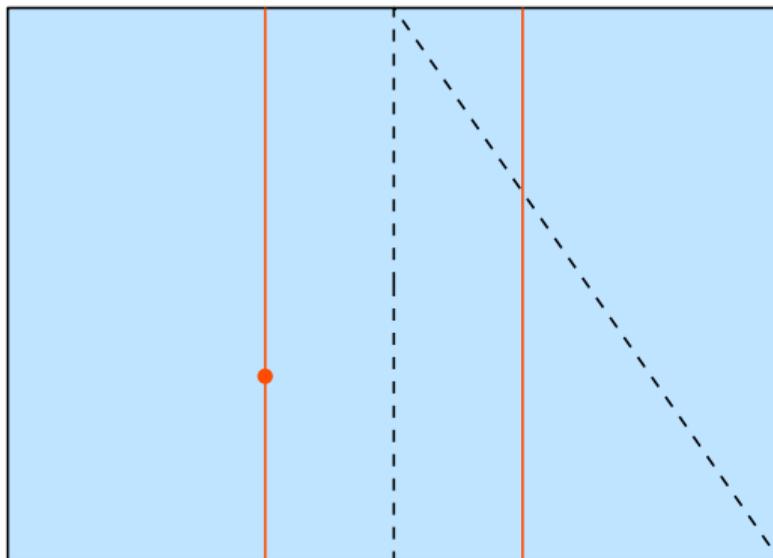
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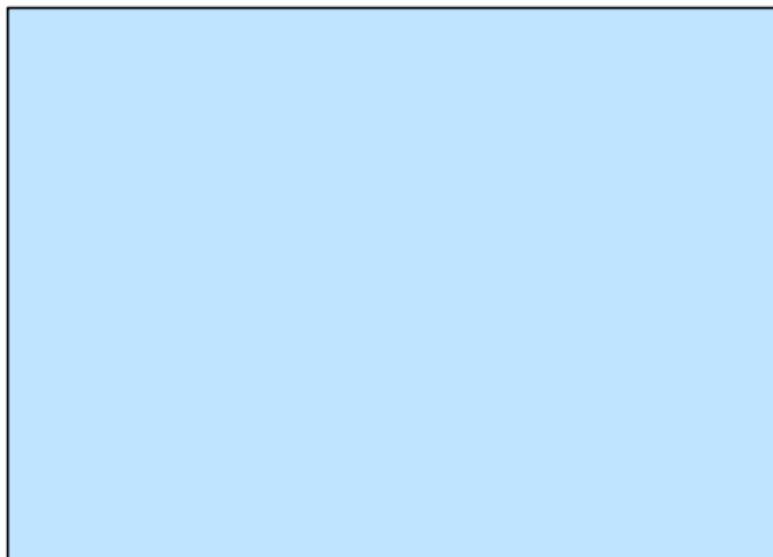
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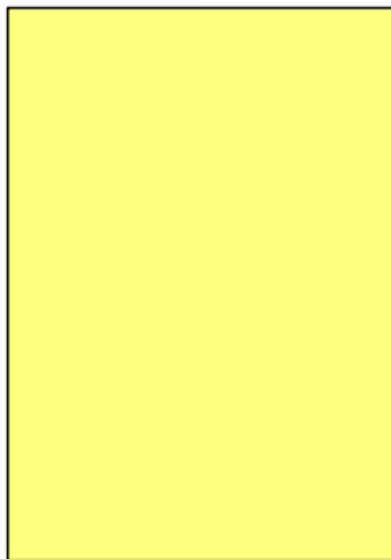
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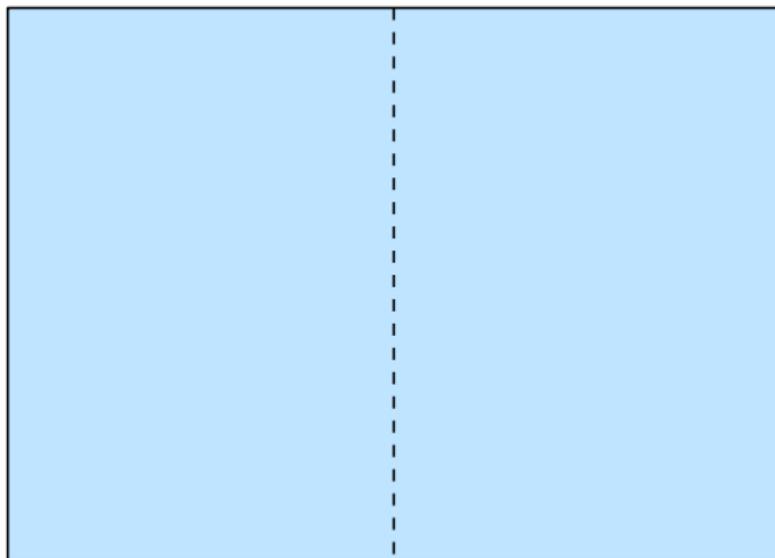
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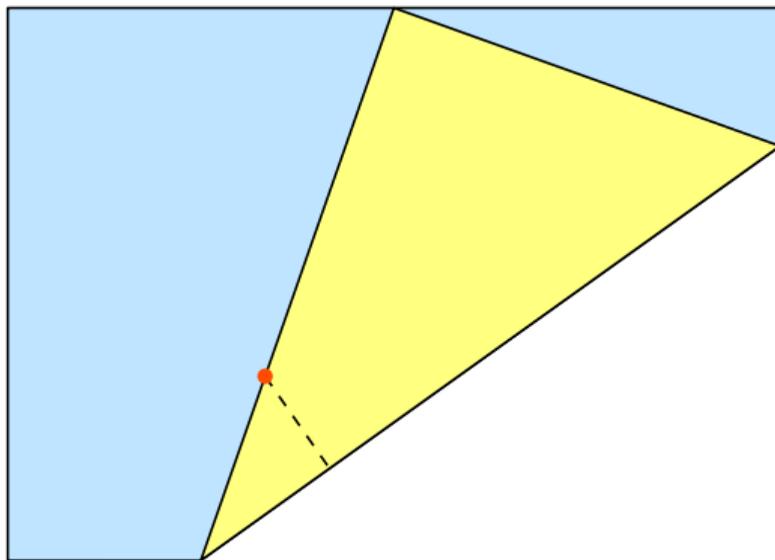
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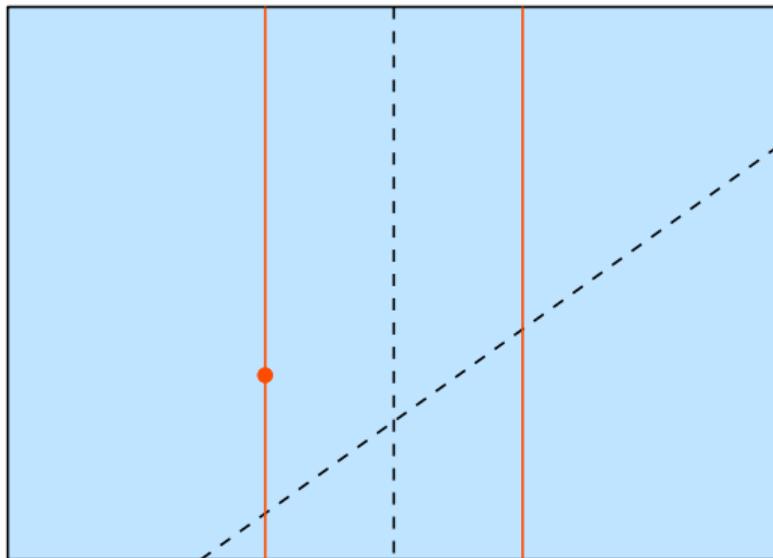
三つ折り 別解 2



三つ折り 別解 2



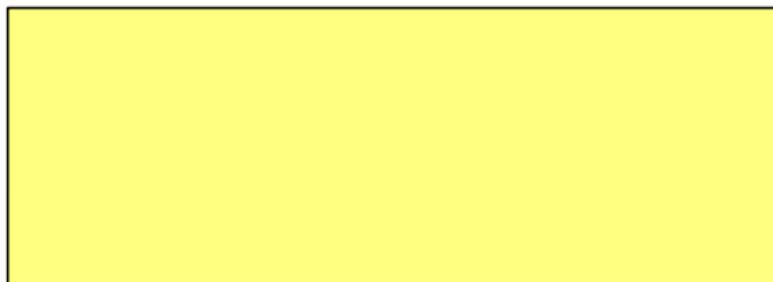
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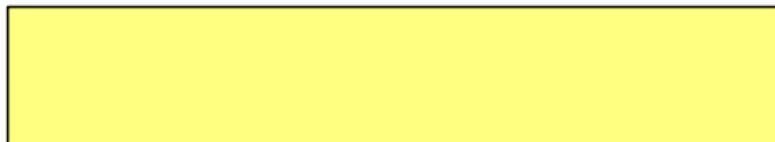
三つ折り 別解 3



三つ折り 別解 3



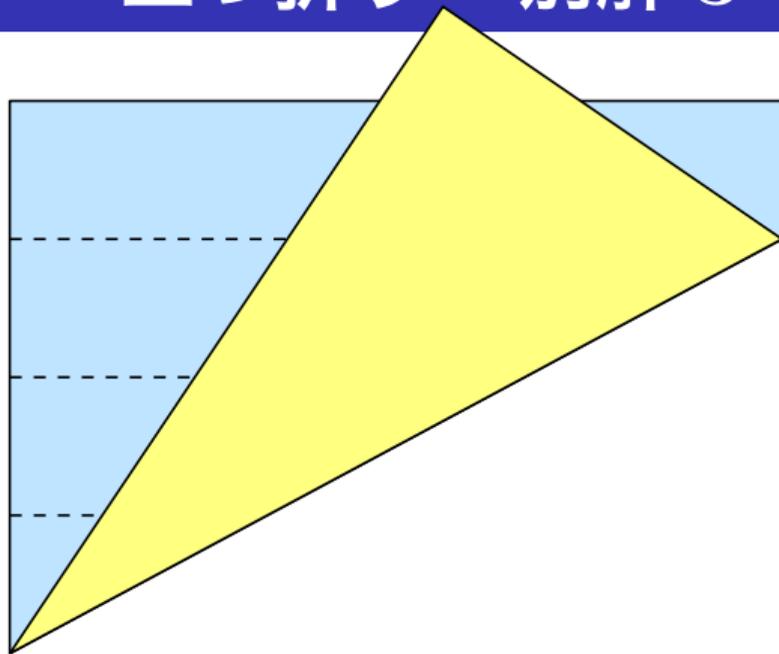
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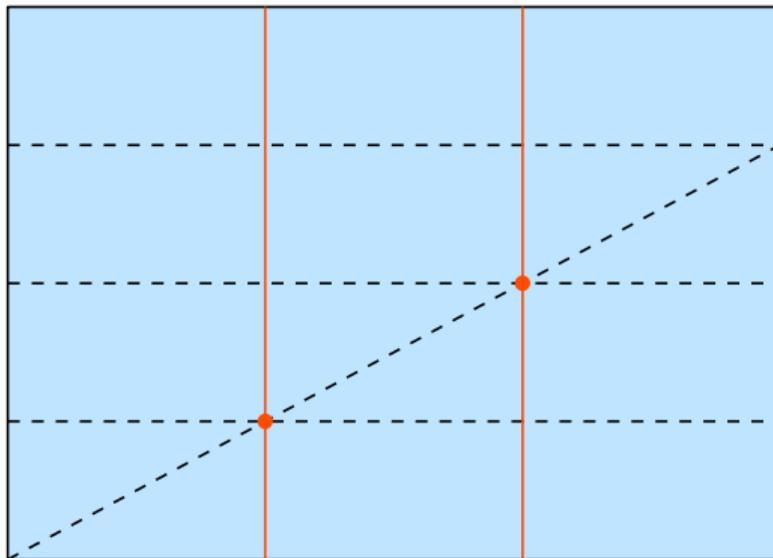
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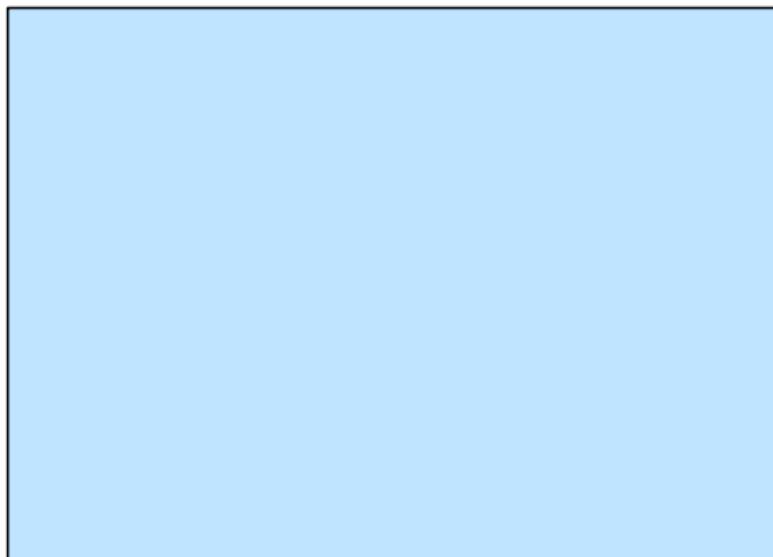
三つ折り 別解 3



三つ折り 別解 3



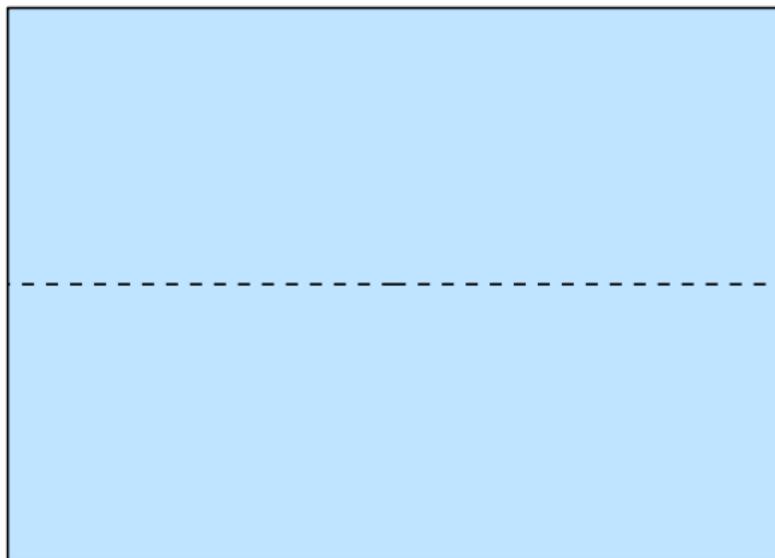
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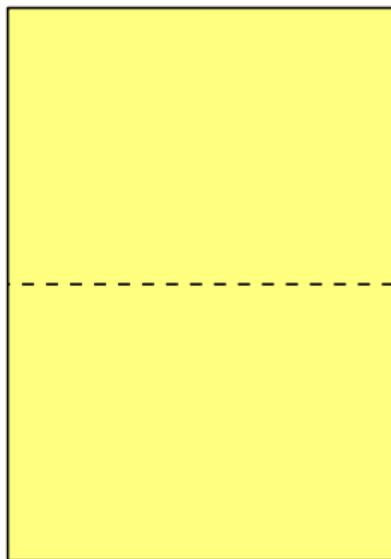
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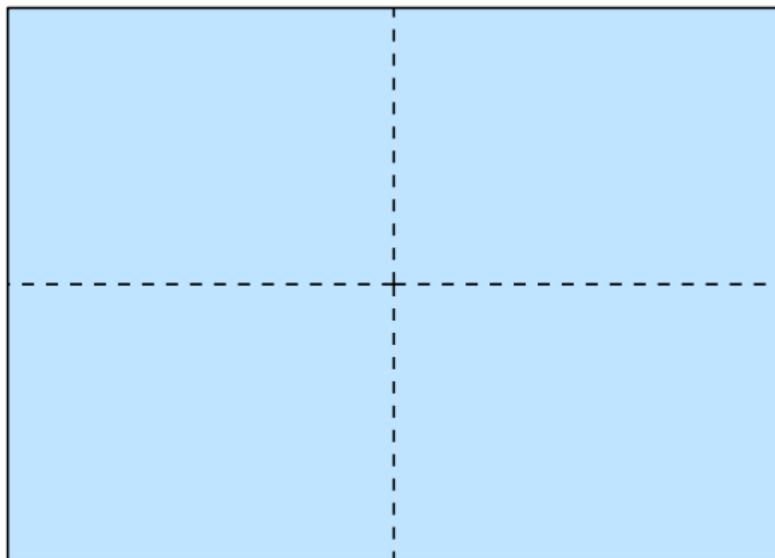
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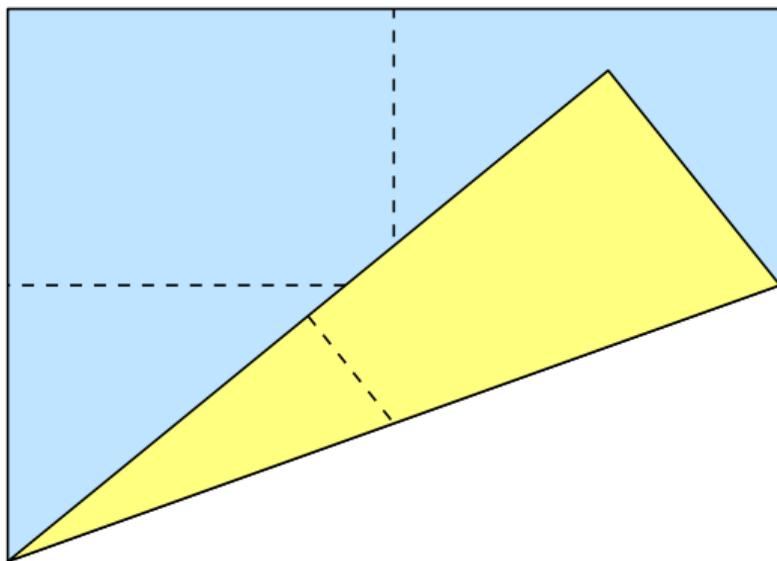
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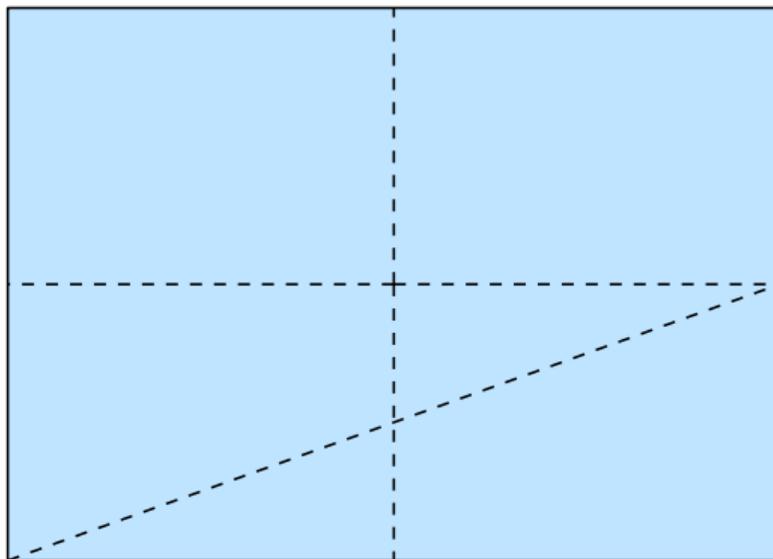
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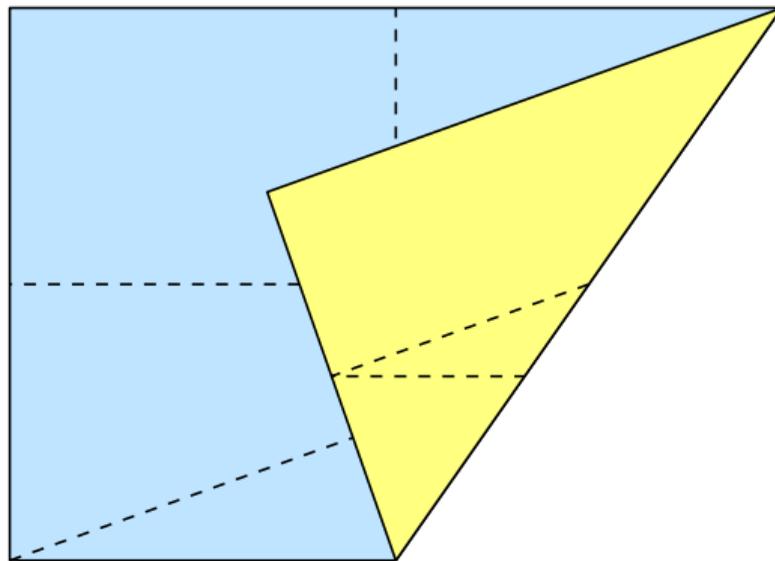
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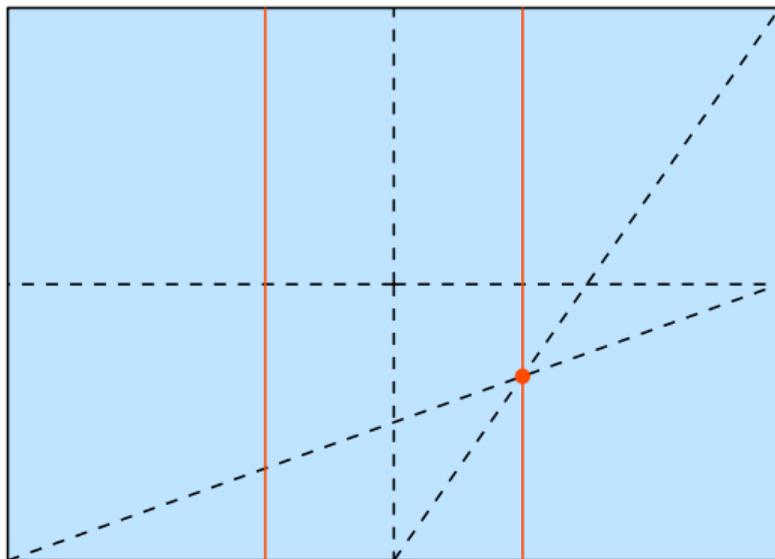
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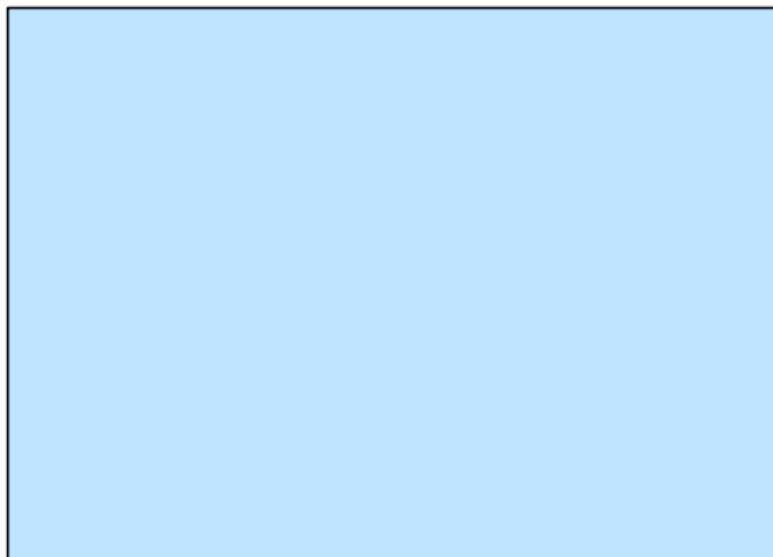
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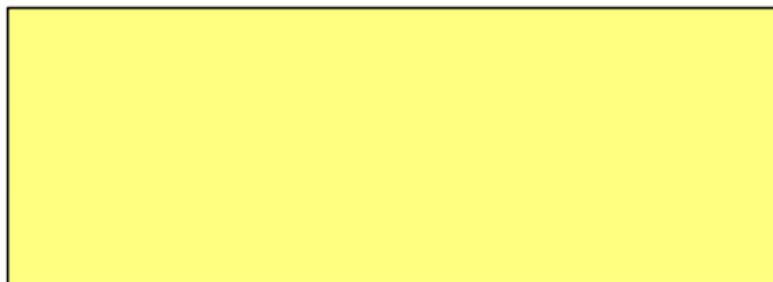
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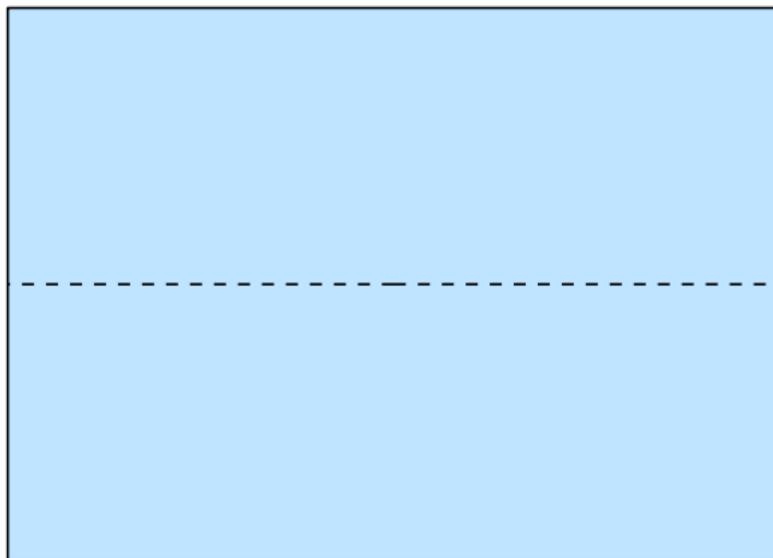
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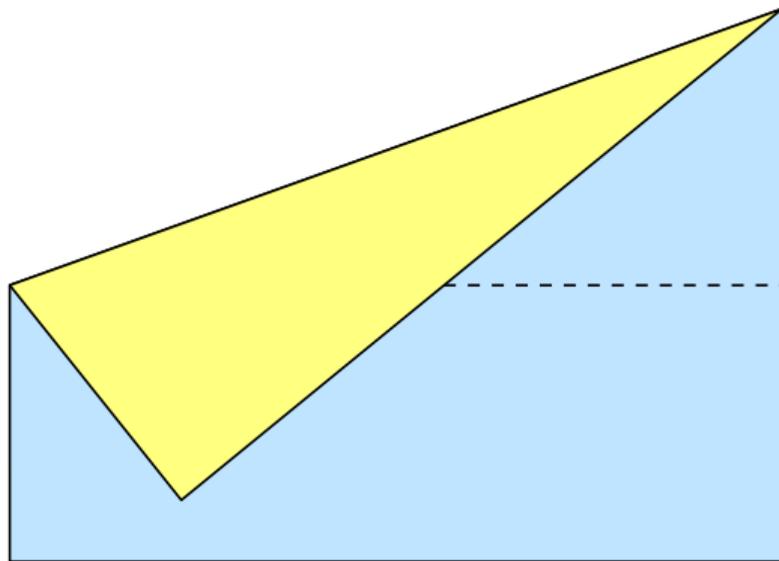
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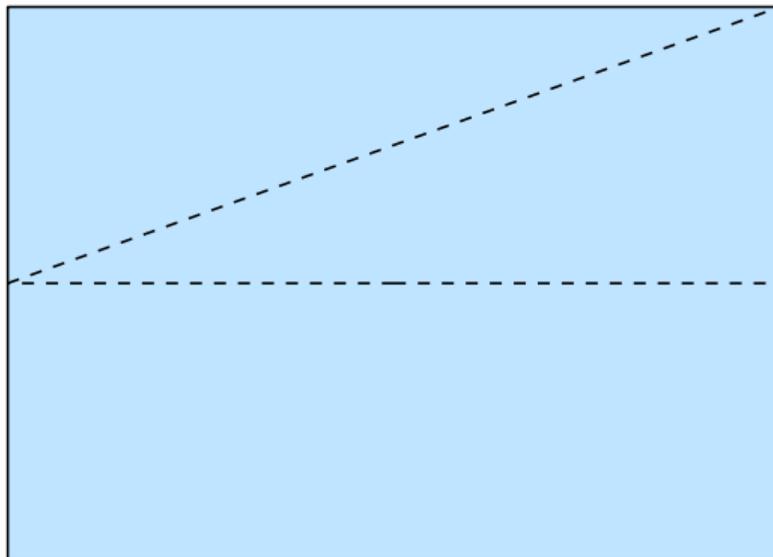
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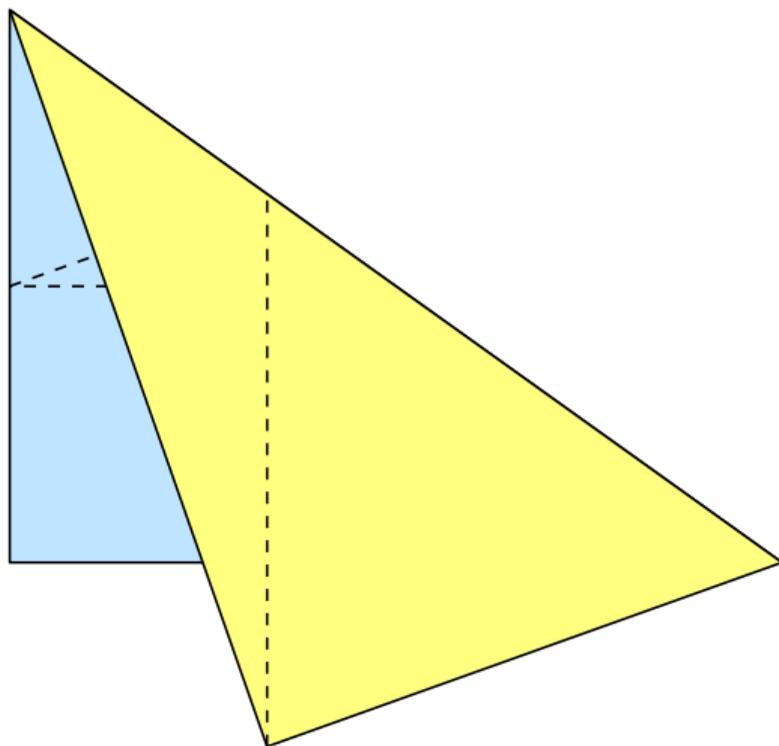
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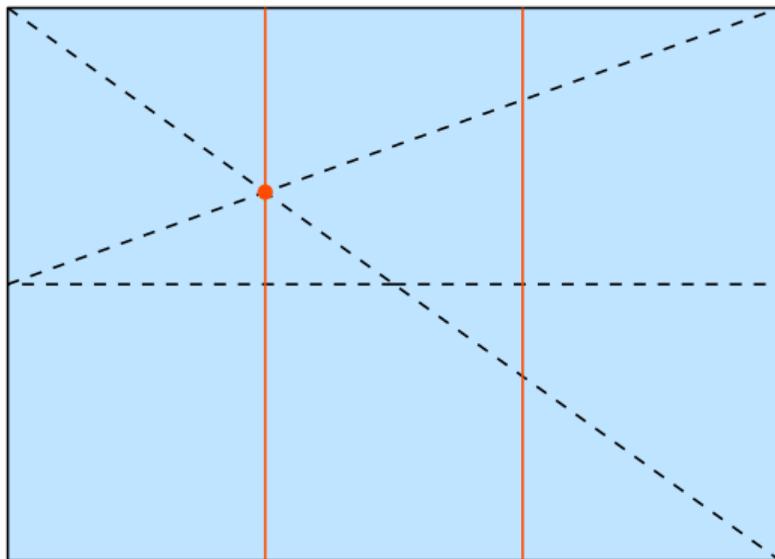
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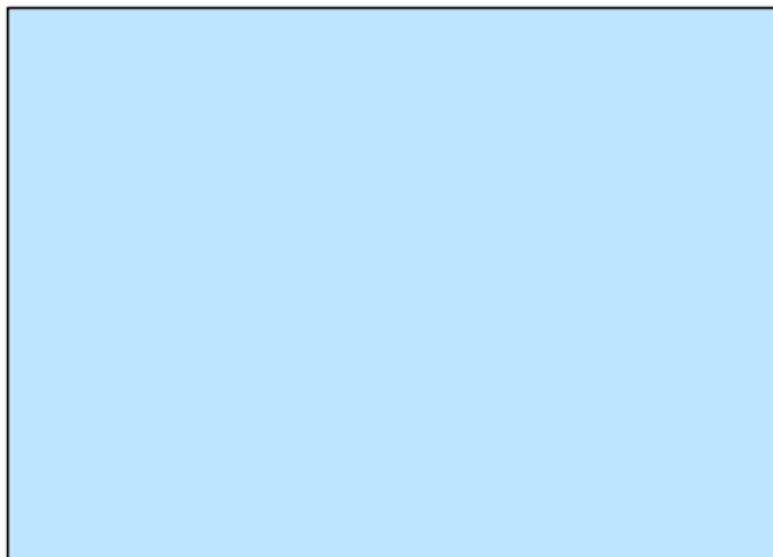
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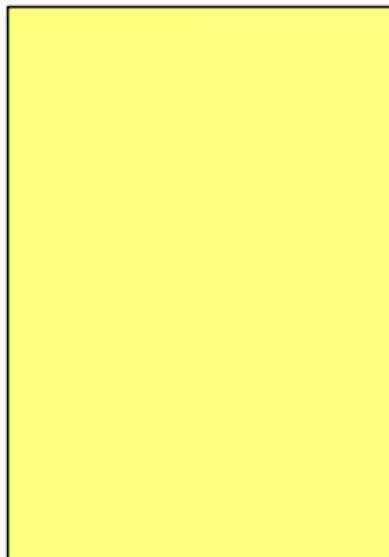
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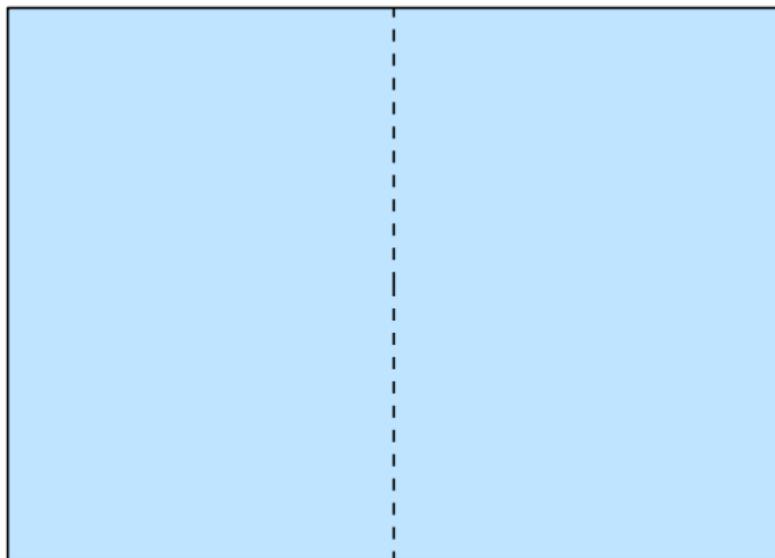
三つ折り 別解 6



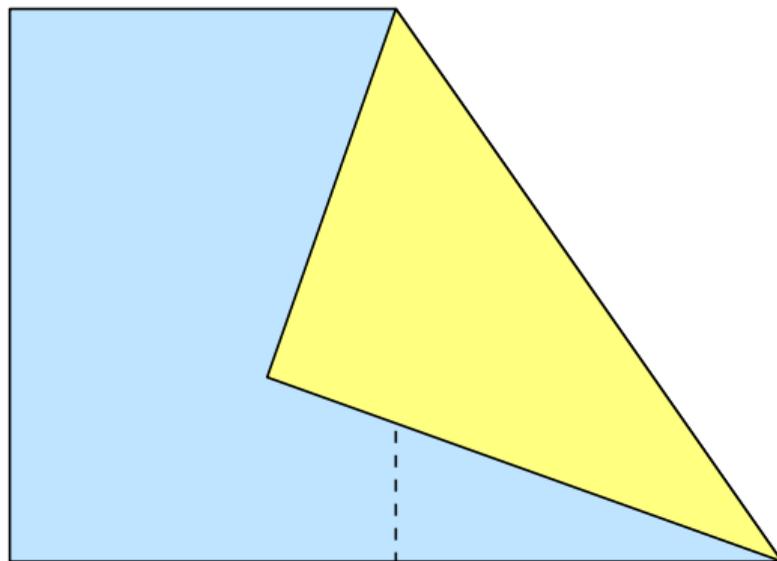
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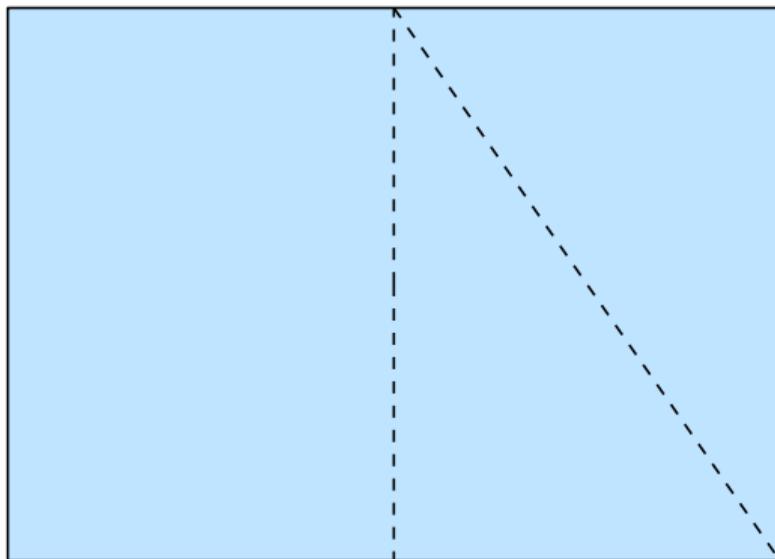
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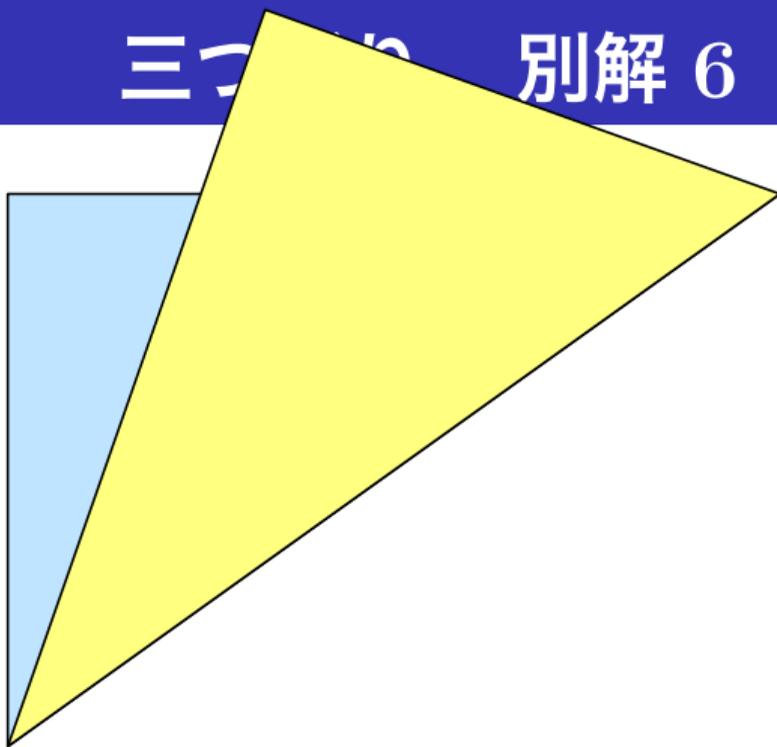
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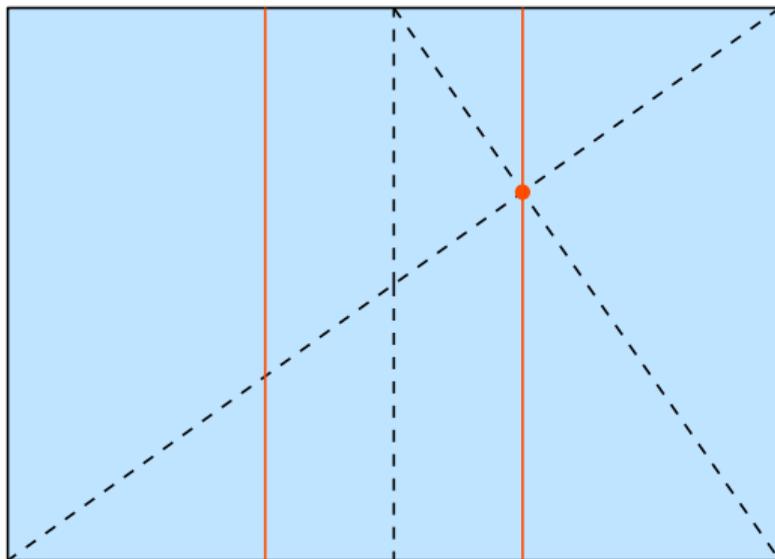
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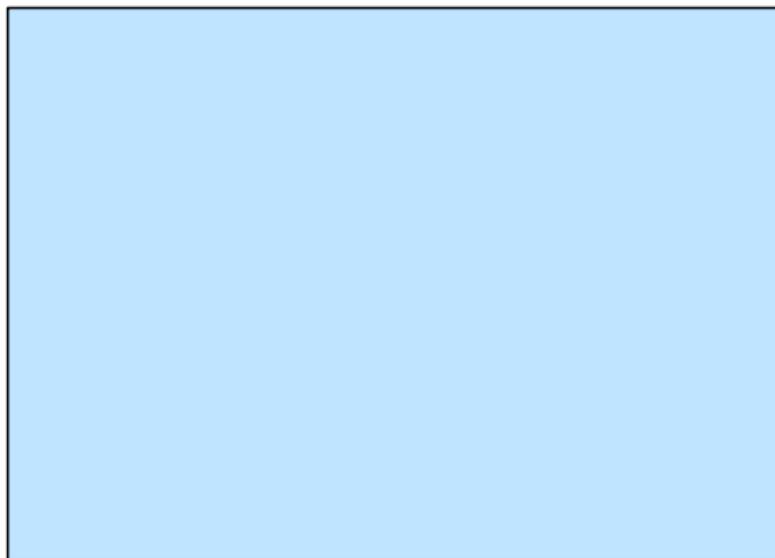
三つ角形 別解 6



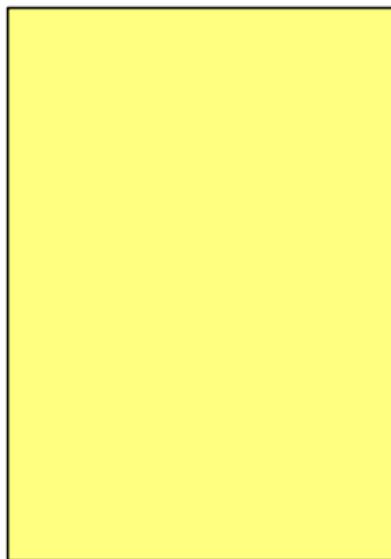
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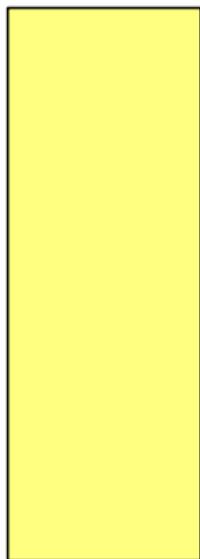
番外編 五つ折り



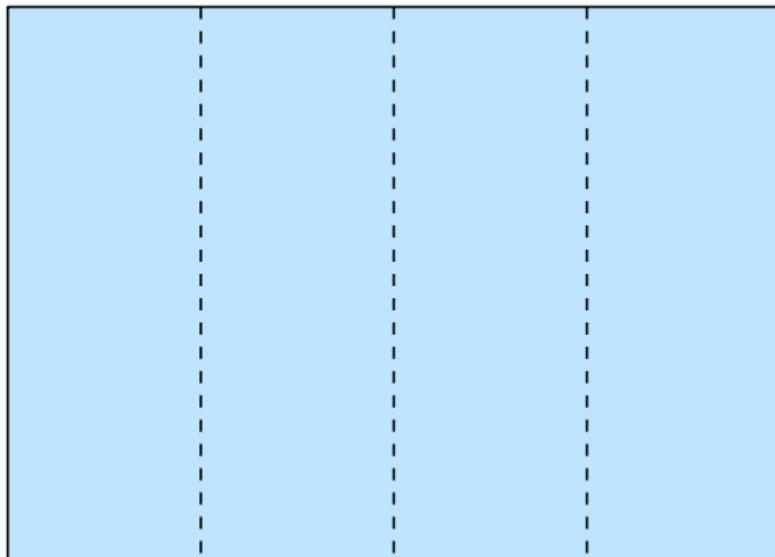
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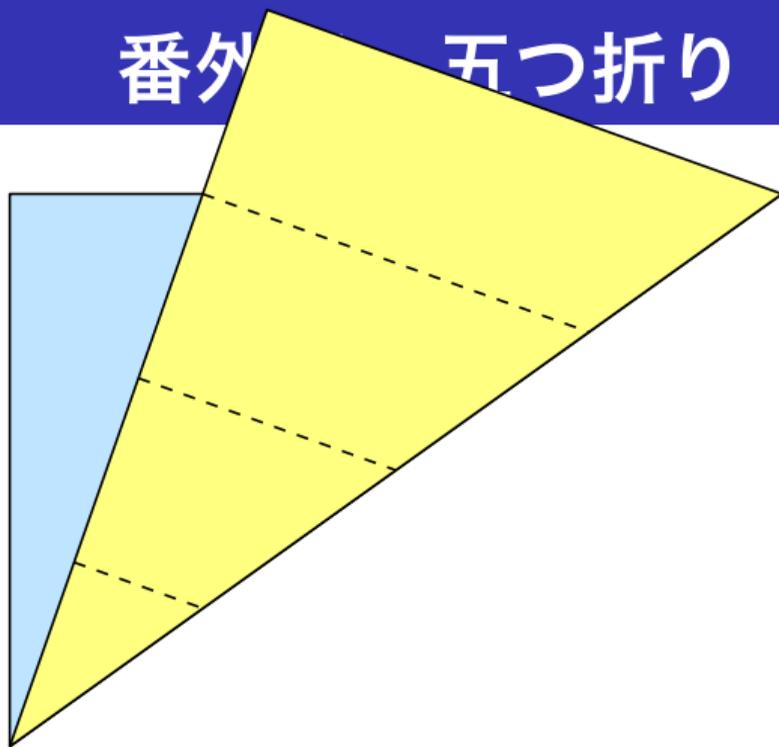
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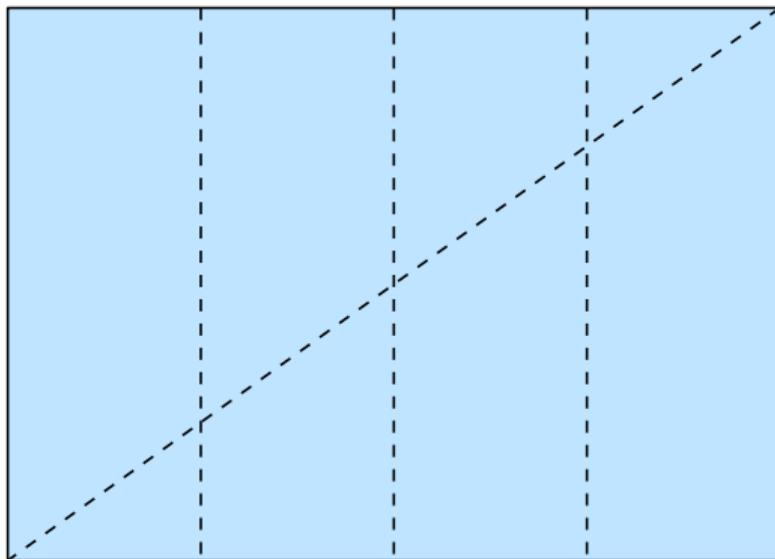
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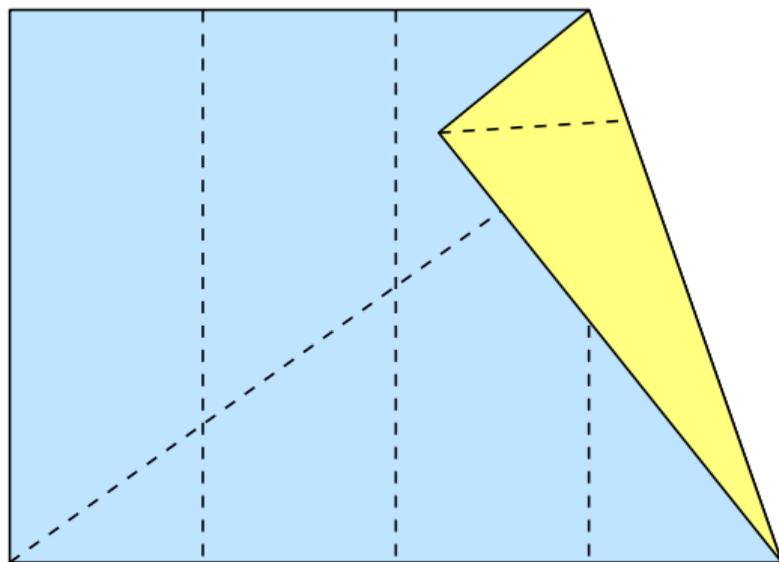
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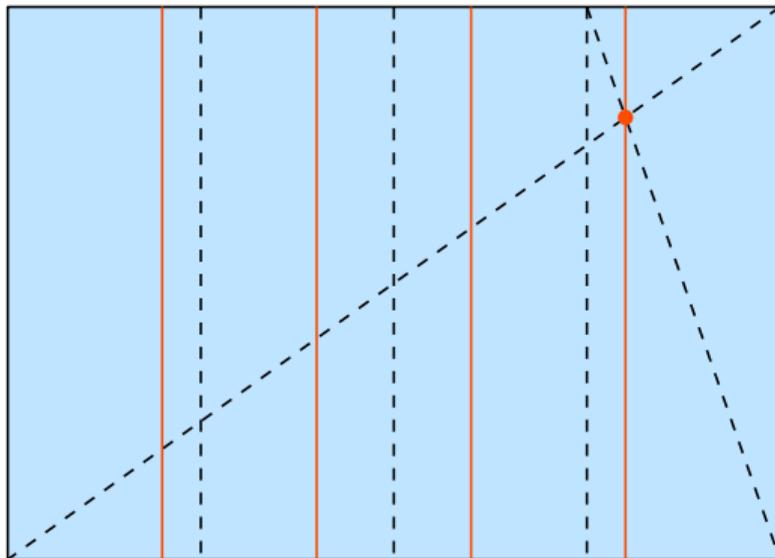
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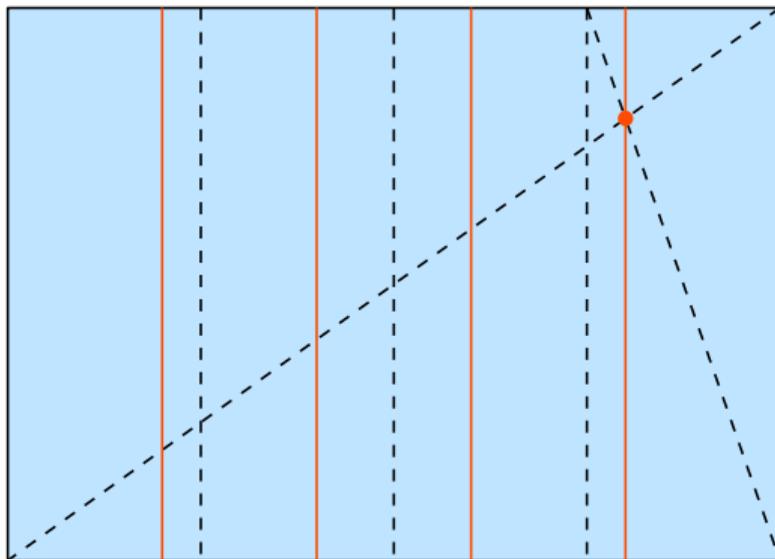
番外編 五つ折り



番外編 五つ折り



番外編 五つ折り



奇数等分は無限に折ることができるそうです