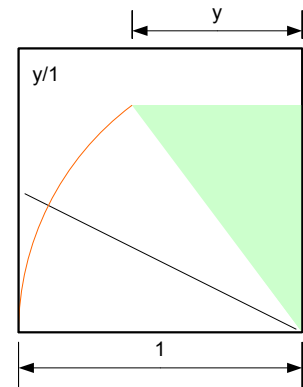
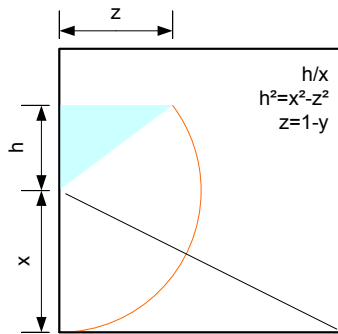
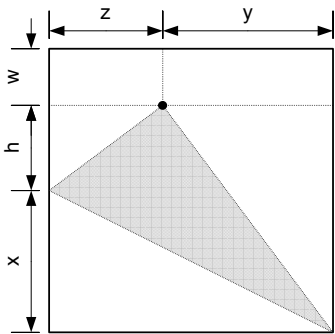


Origami Teilung mit einer Diagonalen

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$x = \sqrt{((1-y)/(1+y))}$	$y = (1-x^2)/(1+x^2)$	z	A	w
1/2	3/5	2/5	3	1/5
1/4	15/17	2/17	4	9/17
3/4	7/25	18/15	4	1/25
2/3	5/13	8/13	5	1/13
3/5	8/17	9/17	5	2/17
1/3	4/5	1/5	5	2/5
1/5	12/13	1/13	5	8/13

Anzahl Faltungen

Dreiecke sind kongruent (Similar triangles)

$$h/x = y/1$$

$$\sqrt{(x^2 - z^2)}/x = y$$

$$\sqrt{(x^2 - z^2)} = y * x$$

$$x^2 - z^2 = y^2 * x^2$$

$$x^2/x^2 - z^2/x^2 = y^2$$

$$1 - z^2/x^2 = y^2$$

$$x^2 = z^2/(1 - y^2)$$

$$x^2 = (1 - y)^2/(1 - y^2)$$

$$x = \sqrt{((1 - y)^2/(1 - y^2))}$$

$$x = \sqrt{((1 - y)/(1 + y))}$$

$$x = \sqrt{((1 - y)/(1 + y))}$$

$$x^2 = (1 - y)/(1 + y)$$

$$(1 + y) * x^2 = 1 - y$$

$$x^2 + y * x^2 = 1 - y$$

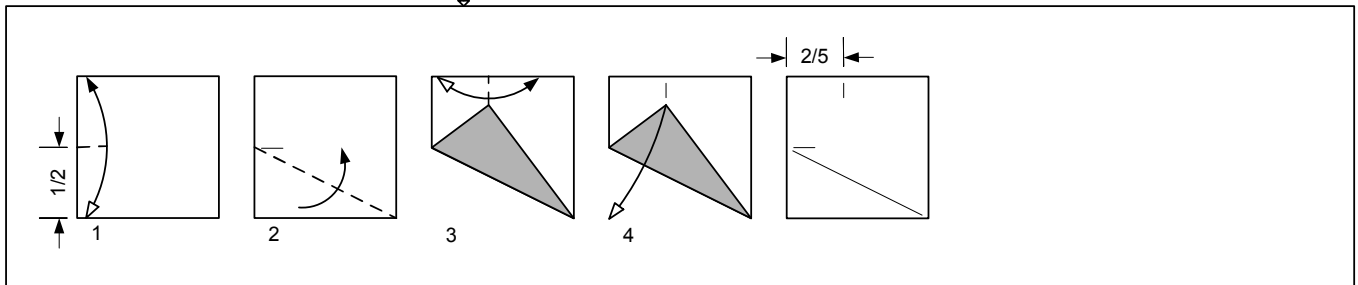
$$y + y * x^2 = 1 - x^2$$

$$y(1 + x^2) = 1 - x^2$$

$$y = (1 - x^2)/(1 + x^2)$$

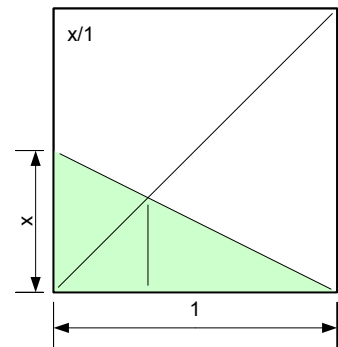
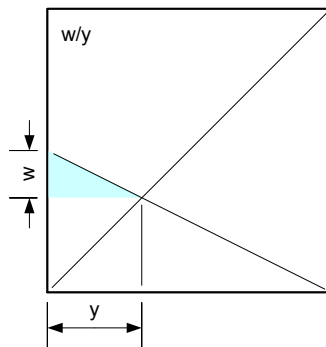
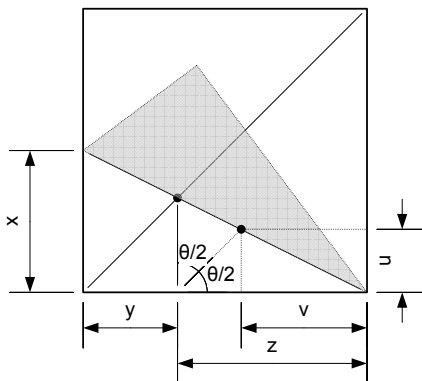
$$w = 1 - h - x$$

$$w = (1 - x)^2/(1 + x^2)$$



Origami Teilungen mit zwei Diagonalen

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$x=y/(1-y)$	$y=x/(1+x)$	z	A	u	v	A
1/2	1/3	2/3	4	2/9	4/9	6
1/4	1/5	4/5	5	4/25	16/25	7
3/4	3/7	4/7	5	12/49	16/49	7
1/8	1/9	8/9	6	8/81	64/81	8
1/9	1/10	9/10	6	9/100	81/100	8
1/5	1/6	5/6	5	5/36	25/36	7
1/6	1/7	6/7	7	6/49	36/49	9

Dreiecke sind kongruent (Similar triangles)

$$w/y = x/1$$

$$w = x - y$$

$$(x - y)/y = x/1$$

$$x/y - 1 = x/1$$

$$x/y = (x/1) + 1$$

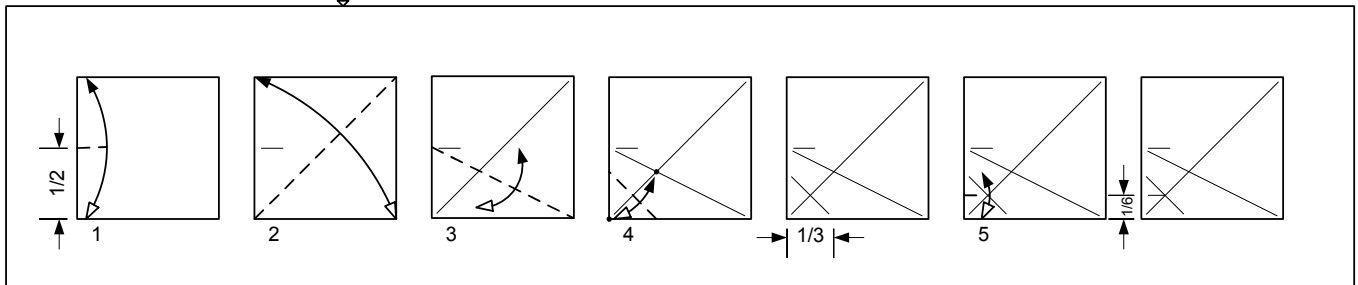
$$1/y = (x + 1)/x$$

$$y = x/(1 + x)$$

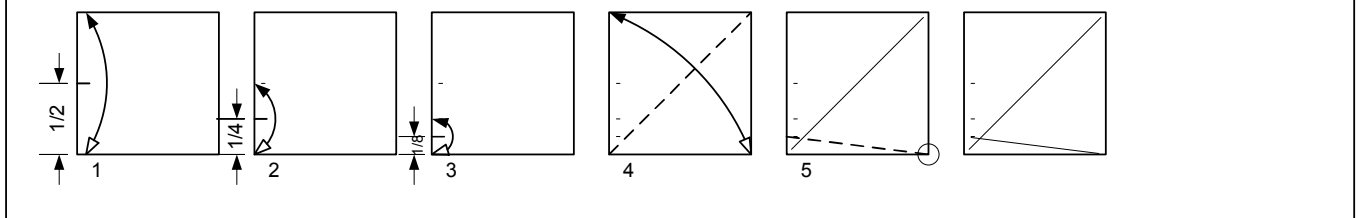
$$u = y \cdot z / (z + y) = x / (1 + x)^2$$

$$v = z - u = 1 / (1 + x)^2$$

Anzahl Faltungen

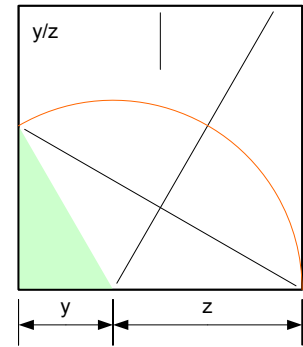
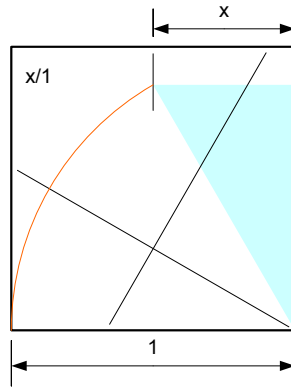
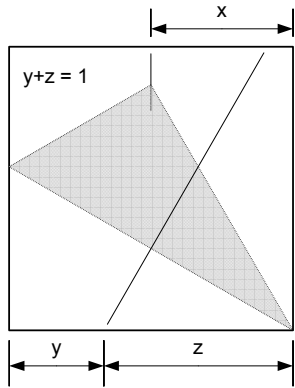


Bei der Teilung mittels Diagonale ist es problematisch die Tal-faltung von der Ecke bis zur Markierung zu falten, z.B. bei einer 1/9 Teilung im Faltschritt 5.



Origami Teilung nach Shuzo Fujimoto

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$x=y/(1-y)$	$y=x/(1+x)$	z	A
1/2	1/3	2/3	3
1/4	1/5	4/5	4
3/4	3/7	4/7	4
1/8	1/9	8/9	6
1/9	1/10	9/10	6
1/5	1/6	5/6	4
1/6	1/7	6/7	6

Dreiecke sind kongruent (Similar triangles)

$$x/1 = y/z$$

$$x = y/(1-y)$$

$$1/x = (1-y)/y$$

$$1/x = 1/y - 1$$

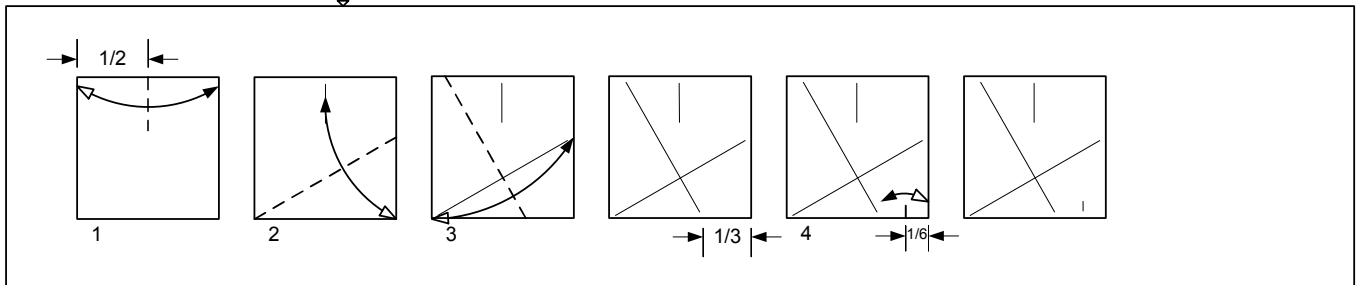
$$1/x + 1 = 1/y$$

$$(1+x)/x = 1/y$$

$$x/(1+x) = y$$

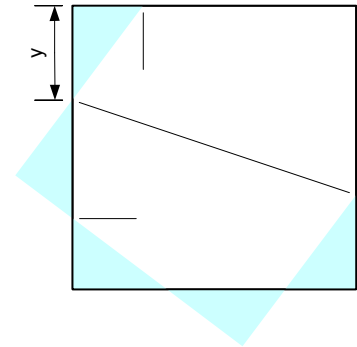
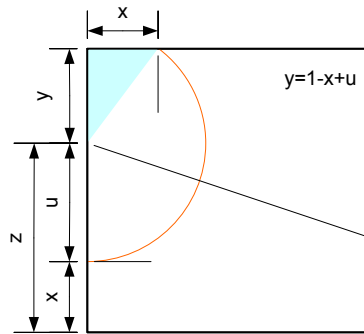
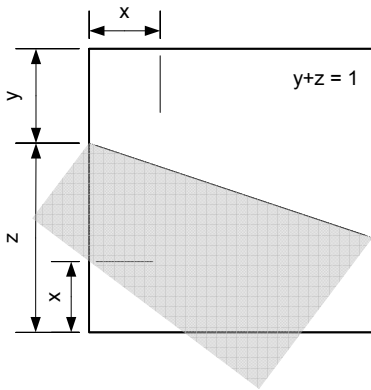
$$y = x/(1+x)$$

Anzahl Faltungen



Origami Teilung nach Masamichi Noma

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$x=1-1/(2-2y)$	$y=1-1/(2-2x)$	z	A
1/4	1/3	2/3	5
3/8	1/5	4/5	7
1/8	3/7	4/7	7
7/16	1/9	8/9	9
4/9	1/10	9/10	8
2/5	1/6	5/6	6
5/12	1/7	6/7	9

Anzahl Faltungen

Satz des Pythagoras (Pythagorean theorem)

$$u^2 = y^2 + x^2$$

$$u = \sqrt{y^2 + x^2}$$

$$z = u + x$$

$$z = \sqrt{y^2 + x^2} + x$$

$$z - x = \sqrt{y^2 + x^2}$$

$$(z - x)^2 = y^2 + x^2$$

$$z^2 - 2xz + x^2 = y^2 + x^2$$

$$z^2 - 2xz = y^2$$

$$z^2 - y^2 = 2xz$$

$$z^2 - (1 - z)^2 = 2xz$$

$$z^2 - 1 + 2z - z^2 = 2xz$$

$$2z - 1 = 2xz$$

$$(2z - 1)/2z = x$$

$$1 - 1/2z = x$$

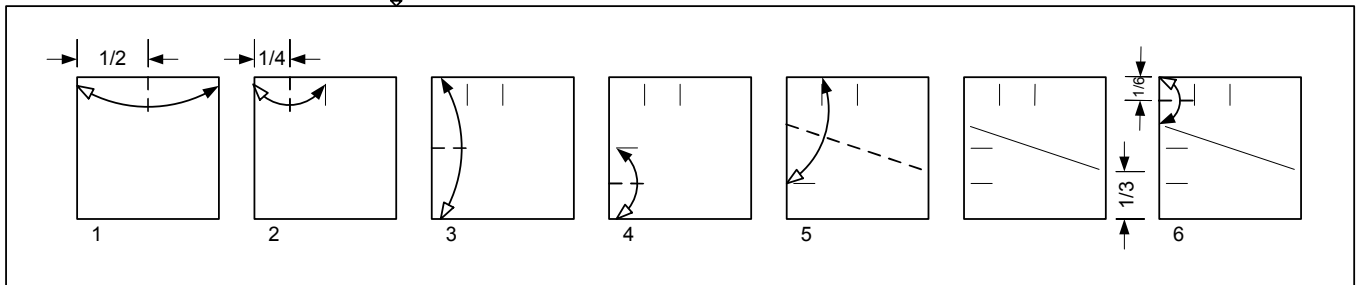
$$1/2z = 1 - x$$

$$1/z = (1 - x)2$$

$$z = 1/(2 - 2x)$$

$$1 - y = 1/(2 - 2x)$$

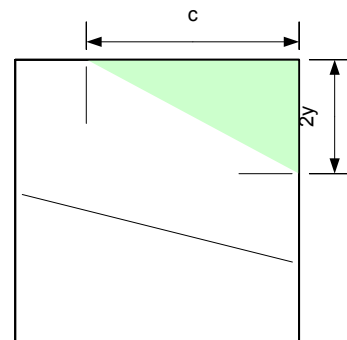
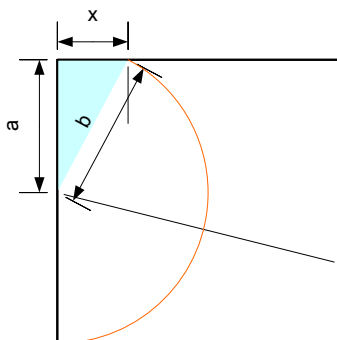
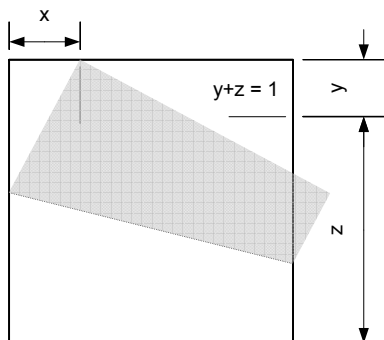
$$y = 1 - 1/(2 - 2x)$$



Bei der Noma's Teilung sind gegenüber der anderen Teilungsarten zwei bis drei Markierungsfaltungen mehr nötig. Der Vorteil ist aber, dass die letzte Faltung nicht durchgeführt werden muss oder aber durch die Mitte des Origami Papiers geht (siehe hierzu Winkel Teilung und Polygone unter www.orime.de)

Origami Teilung nach Kazuo Haga

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$x = y/(1-y)$	$y = x/(1+x)$	z	A
1/2	1/3	2/3	3
1/4	1/5	3/5	4
3/4	3/7	4/7	4
1/8	1/9	8/9	5
1/9	1/10	9/10	5
1/5	1/6	5/6	4
1/6	1/7	6/7	6

Anzahl Faltungen

Dreiecke sind kongruent (Similar triangles)

$$2y/c = x/a$$

$$c + x = 1$$

$$a + b = 1$$

$$b^2 = a^2 + x^2$$

$$(1 - a)^2 = a^2 + x^2$$

$$1 - 2a + a^2 = a^2 + x^2$$

$$1 - 2a = x^2$$

$$2a = 1 - x^2$$

$$a = (1 - x^2)/2$$

$$2y/(1 - x) = x/a$$

$$2y = x(1 - x)/a$$

$$2y = 2x(1 - x)/(1 - x^2)$$

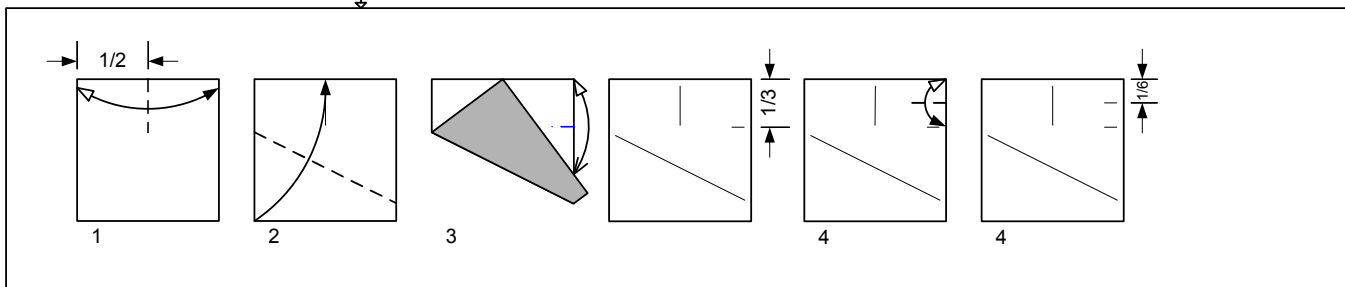
$$2y(1 + x) = 2x(1 - x)(1 + x)/(1 - x^2)$$

$$2y(1 + x) = 2x(1 - x^2)/(1 - x^2)$$

$$2y(1 + x) = 2x$$

$$2y = 2x/(1 + x)$$

$$y = x/(1 + x)$$



Mittels der Haga Teilung kann die Einteilung ohne eine durch das Origami Papier gehende Faltung markiert werde.

