

Flächen und Räume wachsen



Wer nicht erkennt, wo er rechnen kann,
kann nicht rechnen!

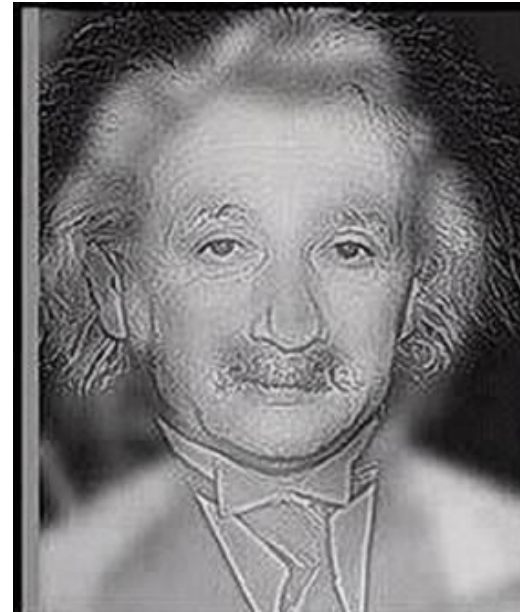
Seh-Test

Wen siehst du?

Geh einmal näher ran
und dann weiter weg.

Wir müssen sehen lernen

2



3



FRAKTALES LERNEN

Wieviele Tiger siehst du?

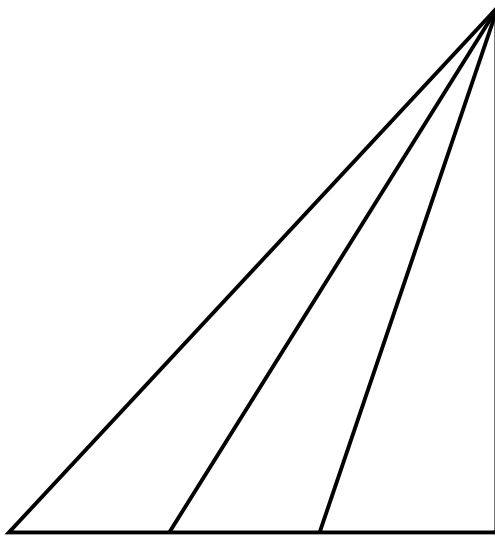
Wir müssen sehen lernen

4



5

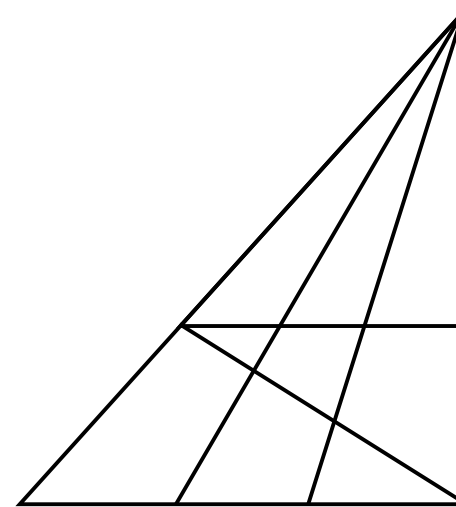
6 Dreiecke



Wir müssen sehen lernen

6

24 Dreiecke

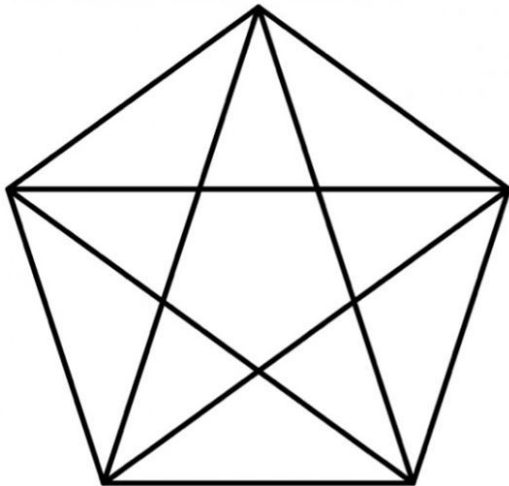


7



FRAKTALES LERNEN

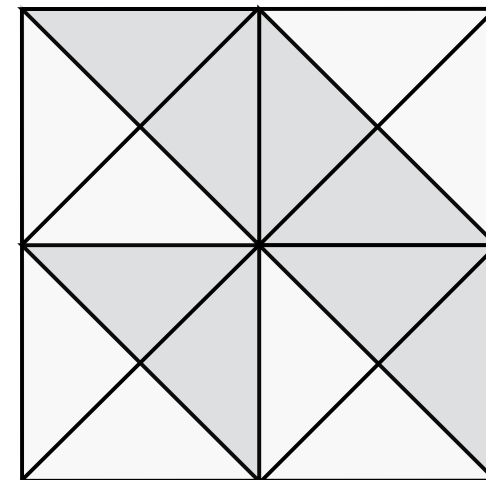
35 Dreiecke



Wir müssen sehen lernen

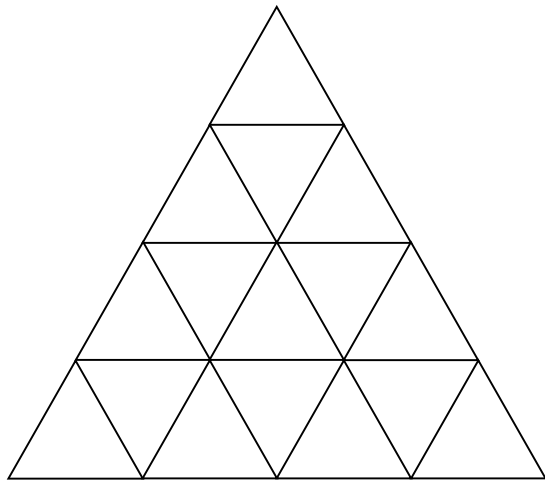
8

44 Dreiecke



9

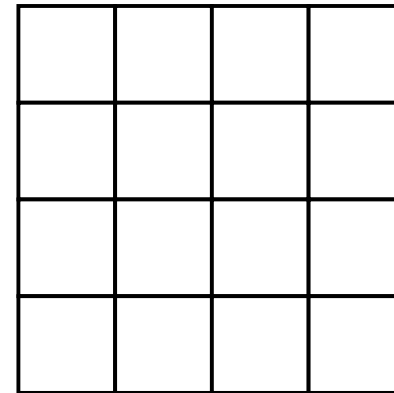
27 Dreiecke



Wir müssen sehen lernen

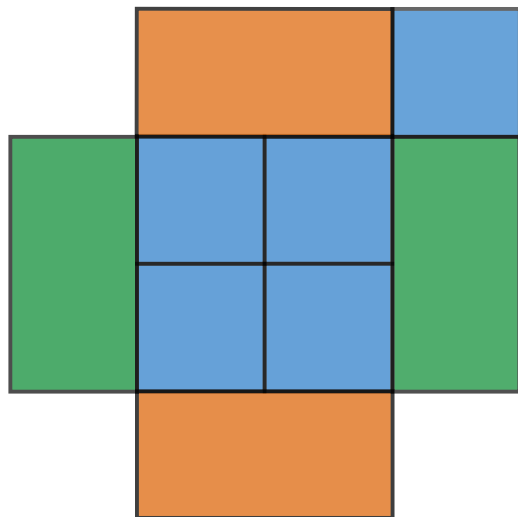
10

30 Quadrate



11

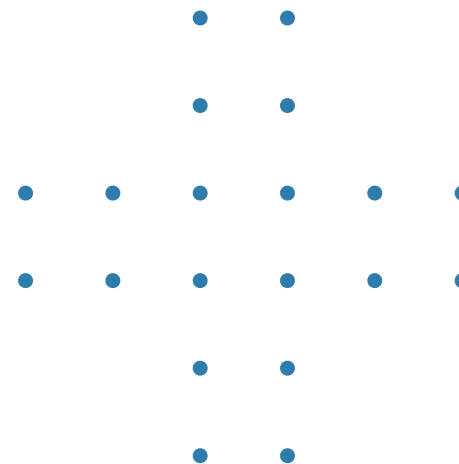
11 Quadrate



Wir müssen sehen lernen

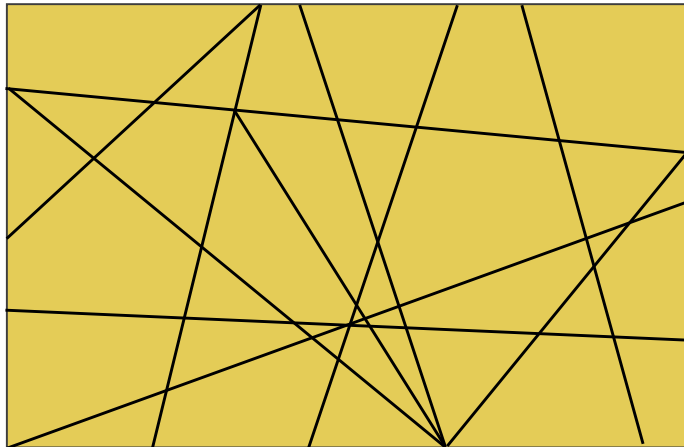
12

21 Quadrate



13

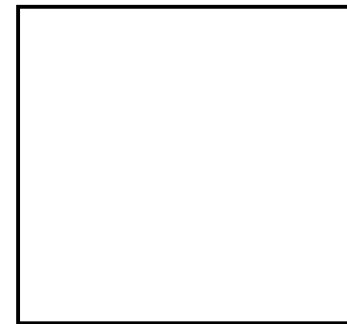
Wieviele Dreiecke ...



Wir müssen sehen lernen

14

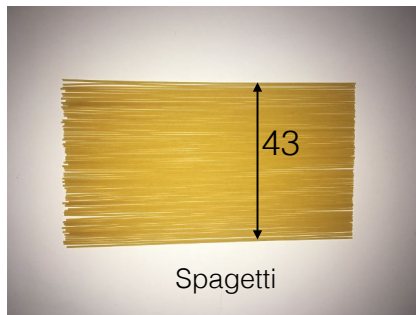
...kannst du entdecken?



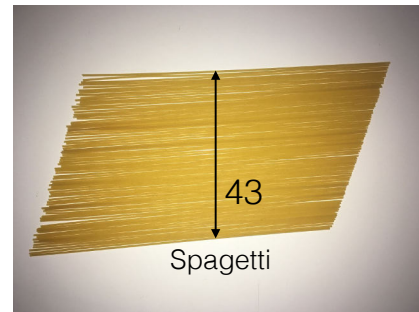
15

Aus Längen wachsen Flächen





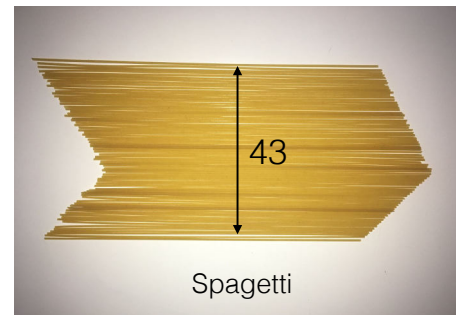
Spagetti



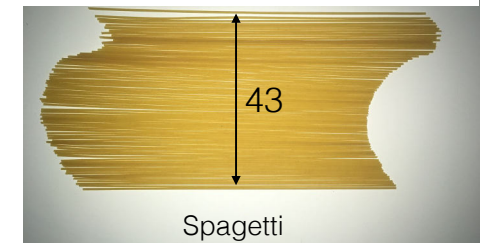
Spagetti

Flächen wachsen

18



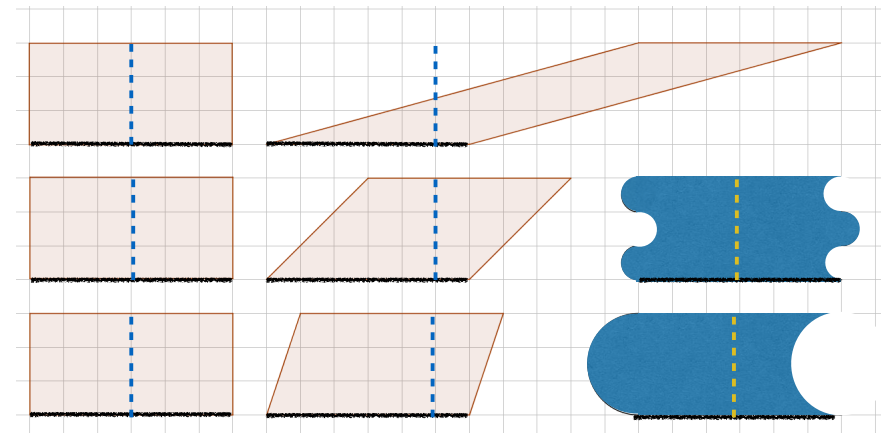
Spagetti



Spagetti

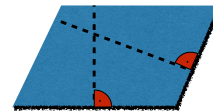
19

$$A = \text{Grundlinie} * \text{Höhe}$$



$$A = g * h$$

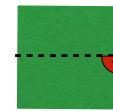
Parallelogramm



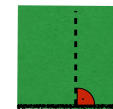
Rechteck



Quadrat



Parallelogramme

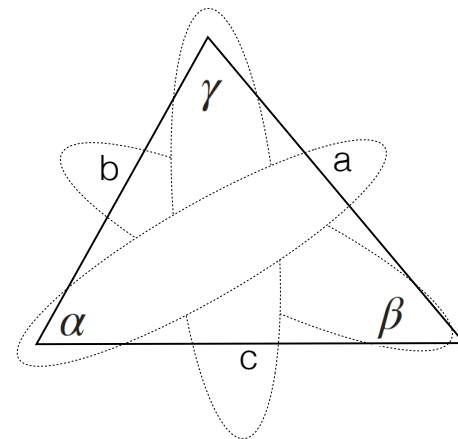


Rechtecke



Quadrat

Ein Dreieck hat 6 Größen,
die wir messen können.

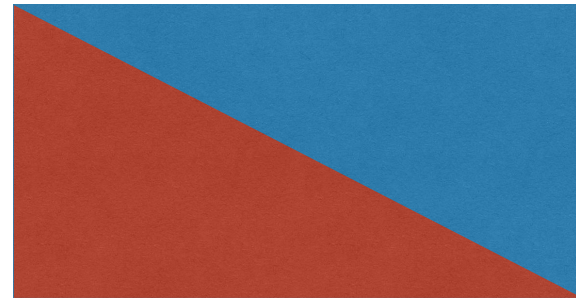


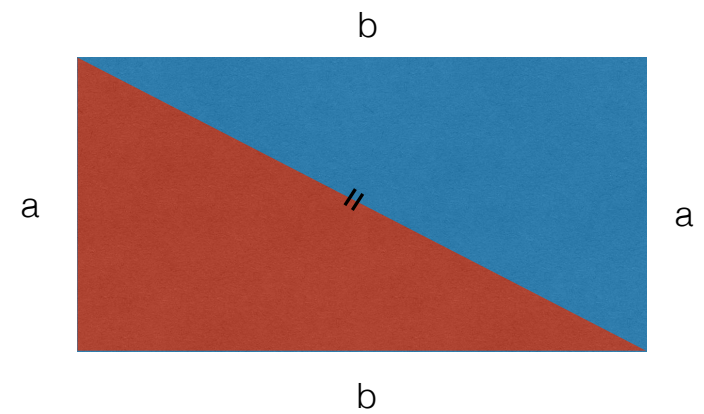
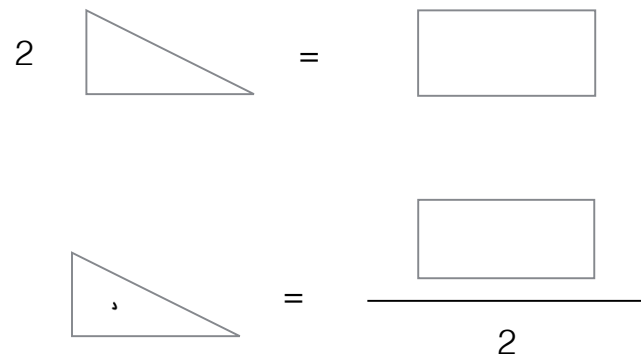
Stimmen 2 Dreiecke in 3 Eigenschaften überein,

und deren Anordnung, wobei 1 Eigenschaft eine Länge sein muss
(aber das spielt im Moment keine Rolle)

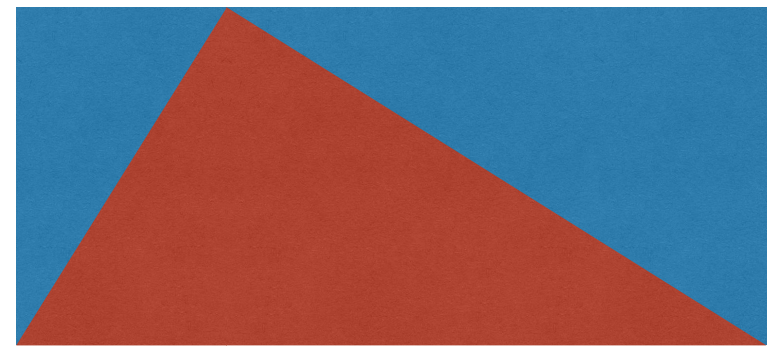
dann sind sie gleich!

Wieviele Formen siehst du?
Was kannst du über sie sagen?

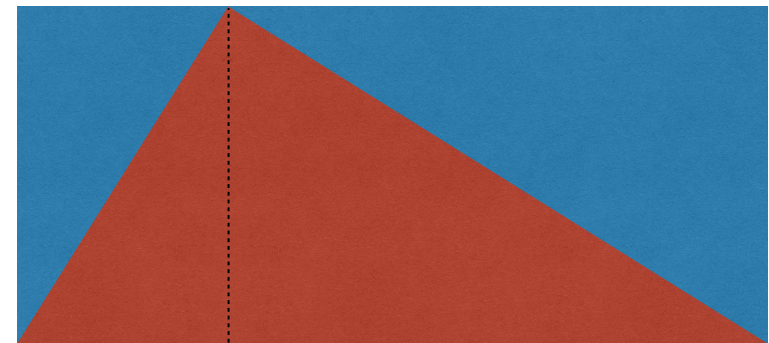


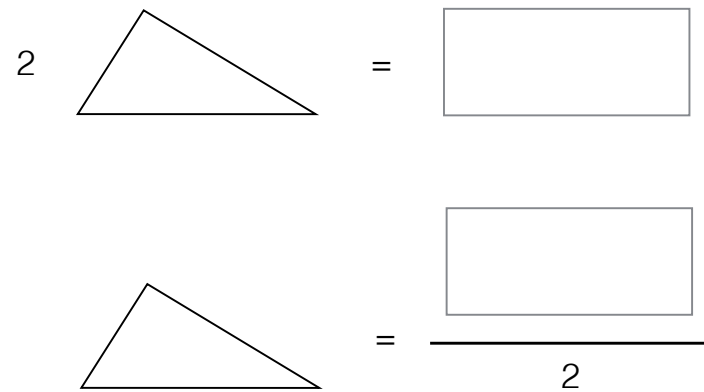


Kannst du 8 Formen entdecken?

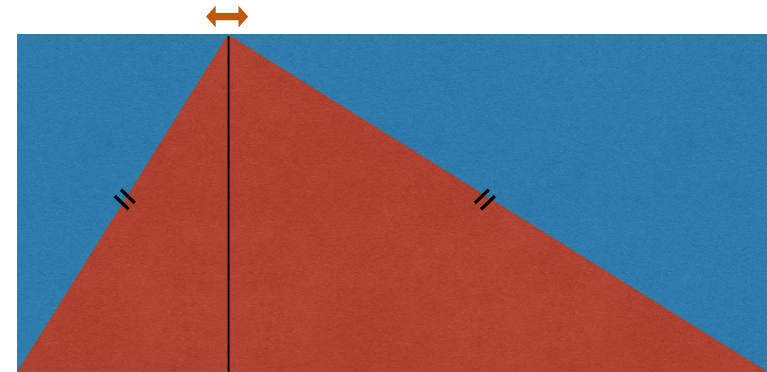


Kannst du sie jetzt sehen?

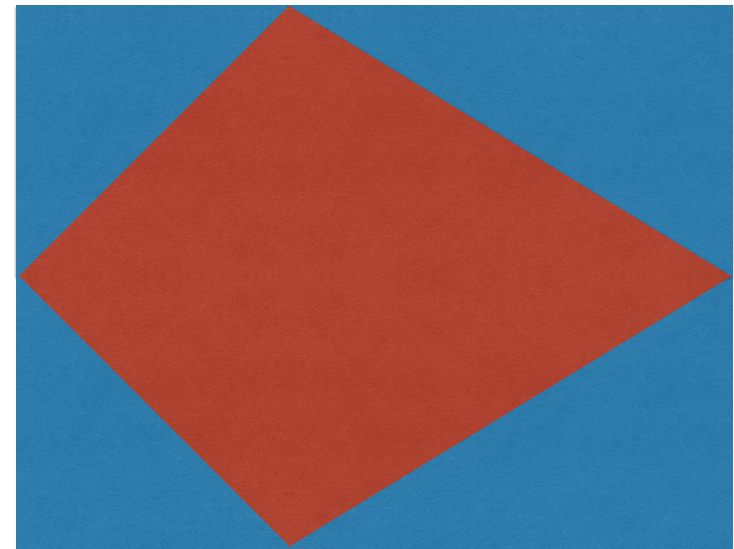




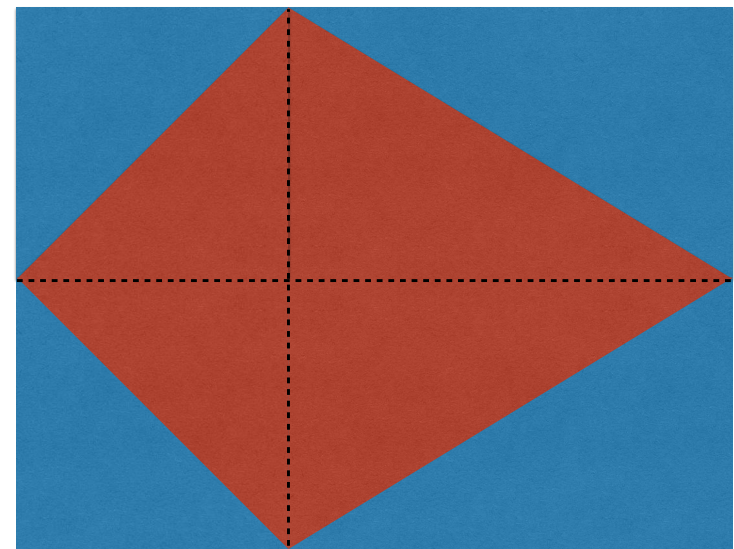
Es ist nicht wichtig, wo genau die Spitze liegt!

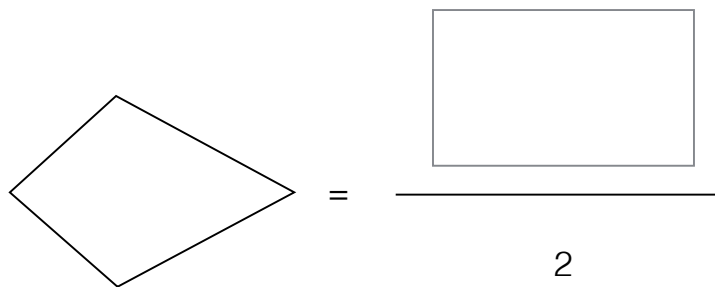


Kannst du 22 Formen entdecken?



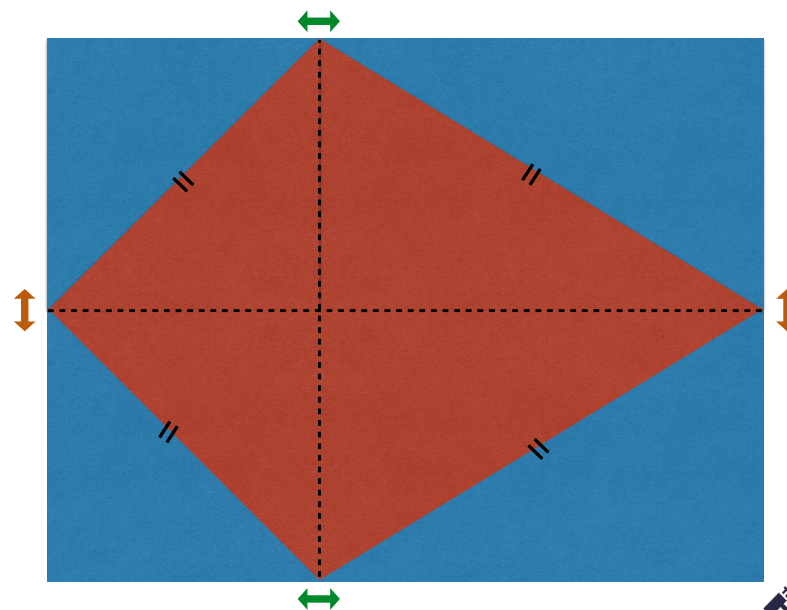
Kannst du sie jetzt sehen?



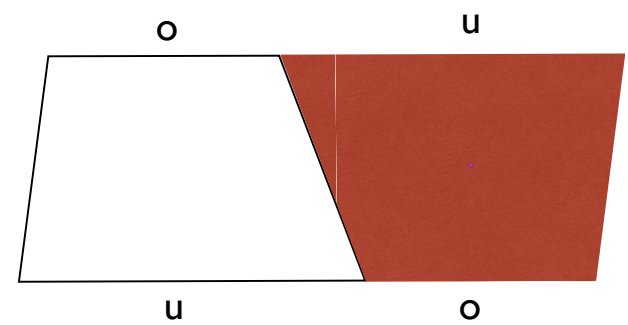
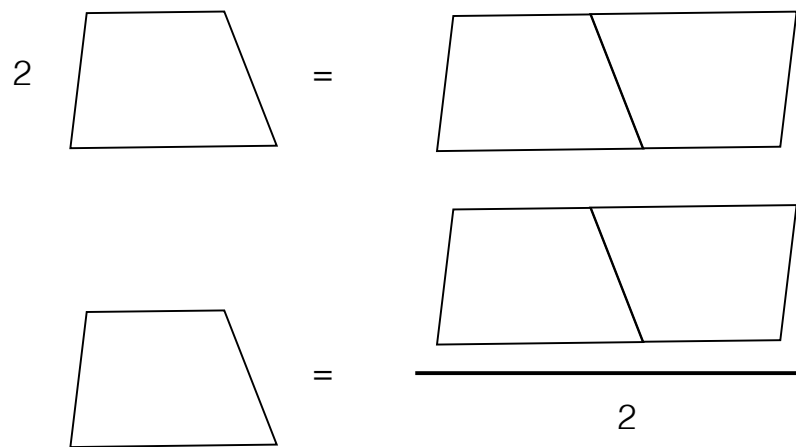


Flächen wachsen

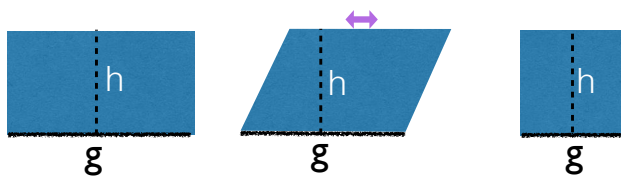
40



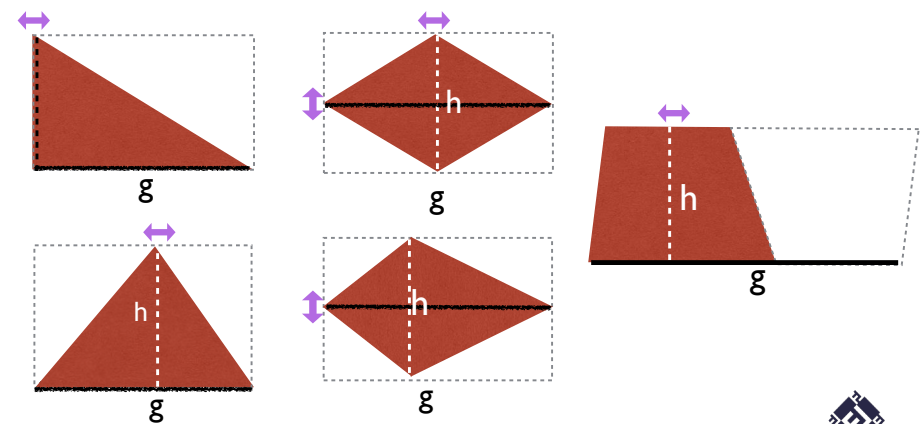
41



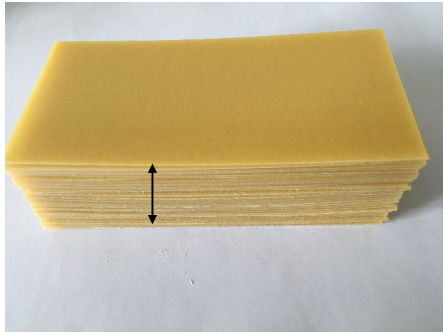
$$A = g * h$$



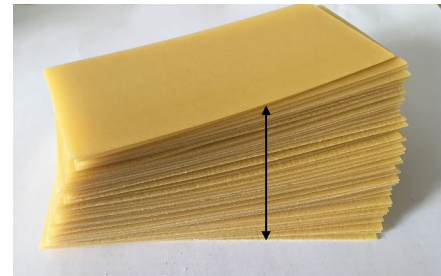
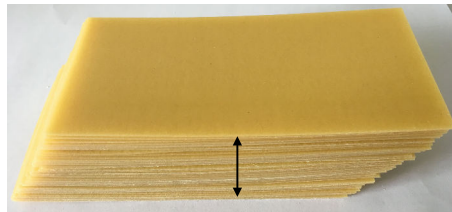
$$A = \frac{g * h}{2}$$



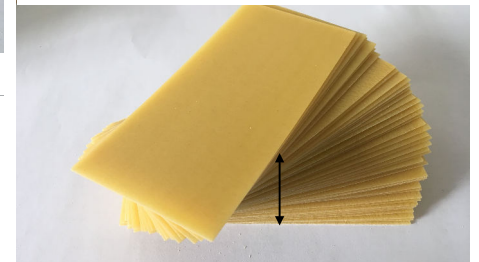


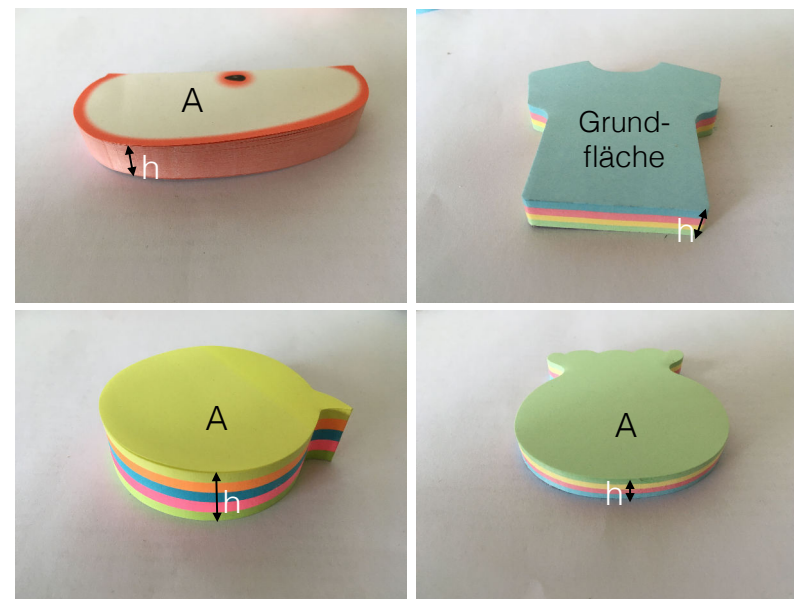
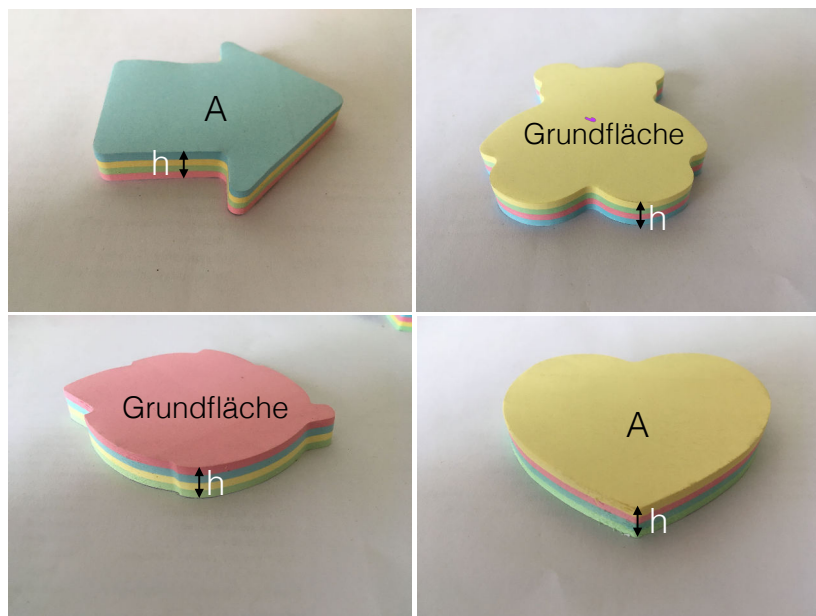


43 Lasagne-Platten

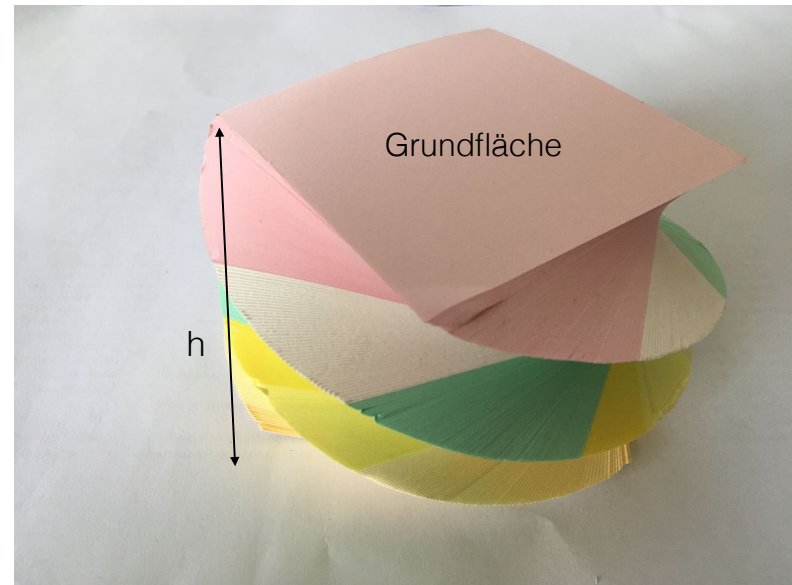


43 Lasagne-Platten



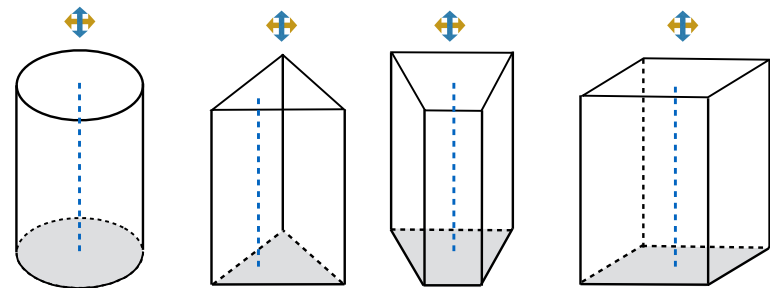


$$\text{Volumen} = \text{Grundfläche} * \text{Höhe}$$



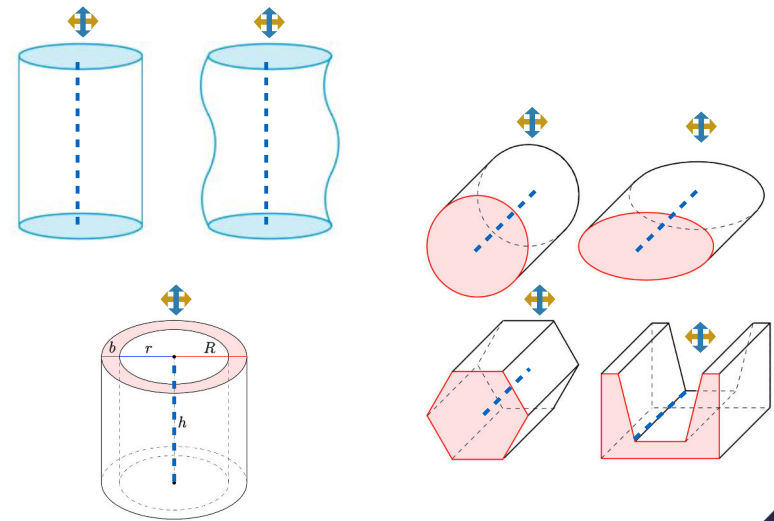
$$V = A_G * h$$

Was bedeuten die Doppelpfeile?

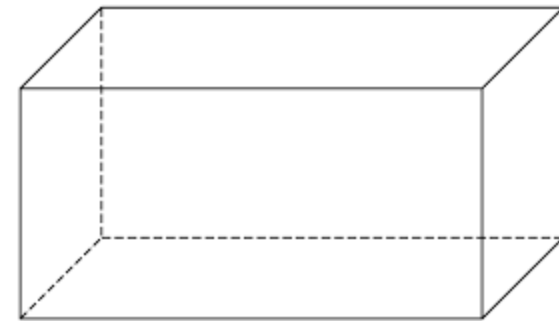


$$V = A_G * h$$

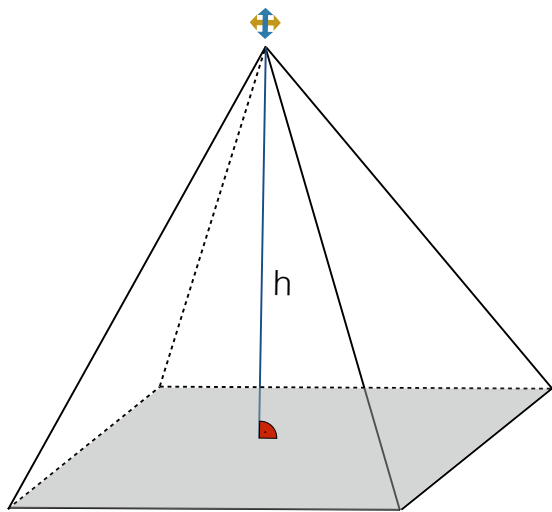
Was ist jeweils Grundfläche und was Höhe?



Warum wurde bei dem Quader
keine Grundfläche eingefärbt?







Räume wachsen

62



63



+



+



=

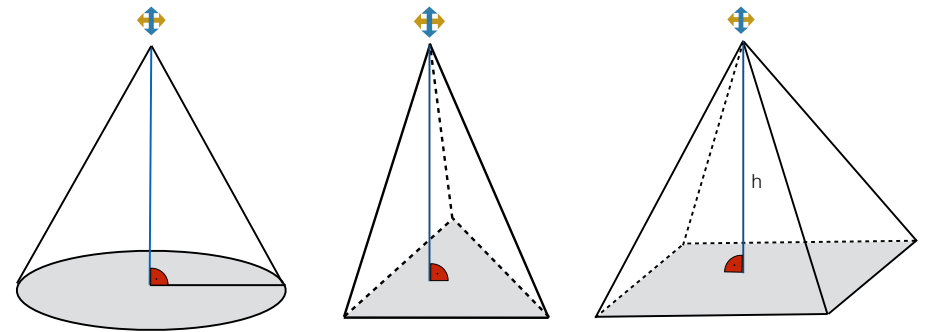
Räume wachsen

64



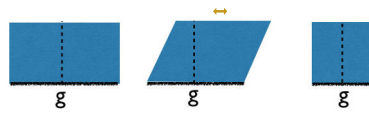
65

$$V = \frac{A_G * h}{3}$$

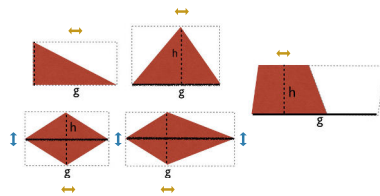


Flächen

2D



$$A = g * h$$



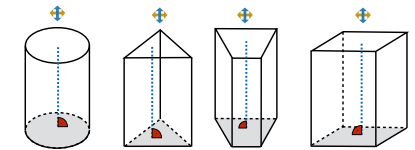
$$A = \frac{g * h}{2}$$

Räume wachsen

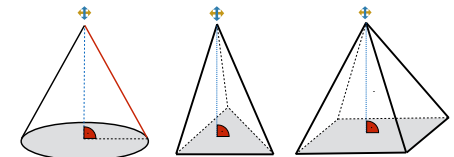
68

Räume

3D



$$V = A_G * h$$

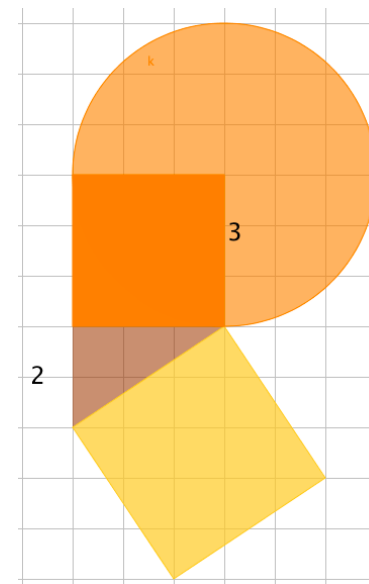


$$V = \frac{A_G * h}{3}$$

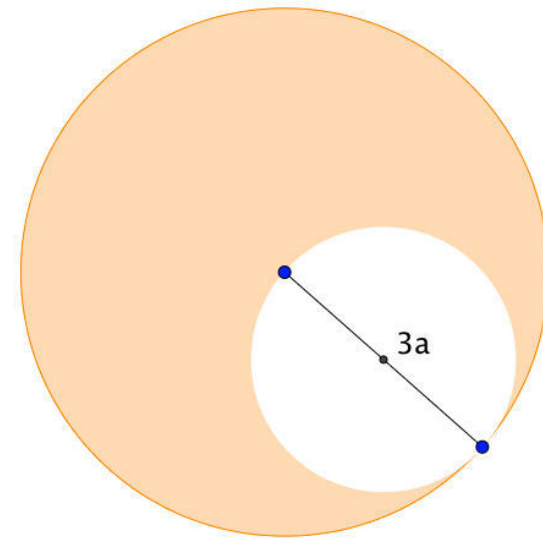
69

Kannst du folgende Flächen
in seine Bauteile
zerlegen?

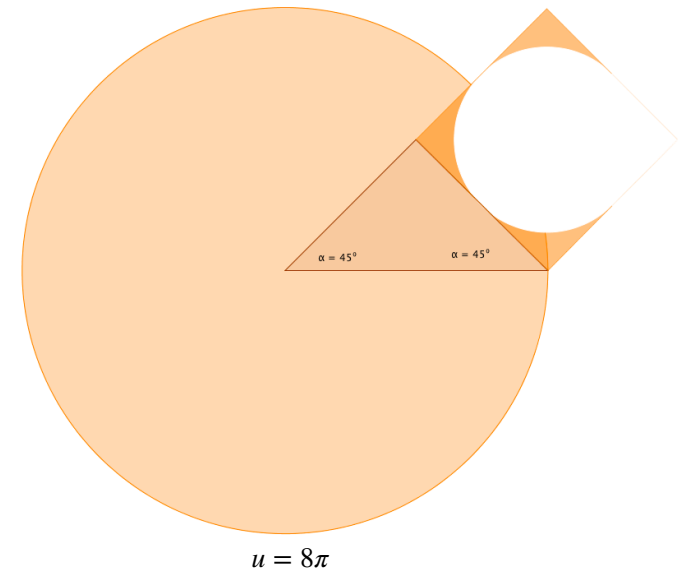
Fläche =  +  +  + 

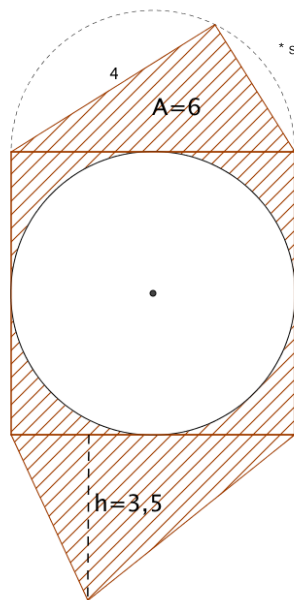


$$\text{Fläche} = \text{●} - \text{●}$$



$$A = \frac{7}{8} \text{ (circle) } + \text{ (triangle) } + \frac{3}{4} \left(\text{ (square) } - \text{ (circle) } \right)$$

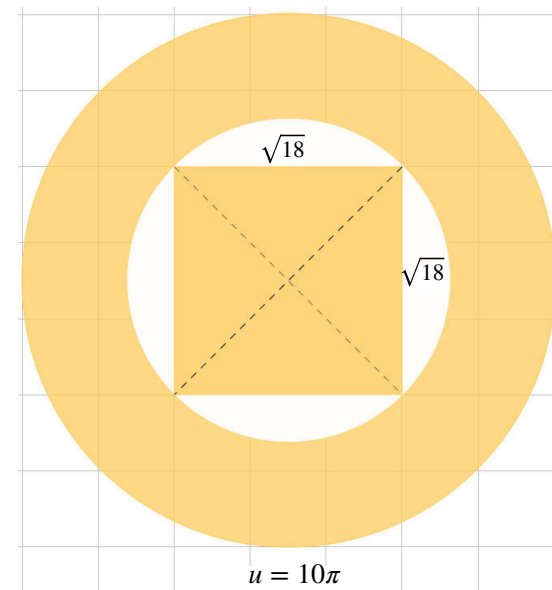




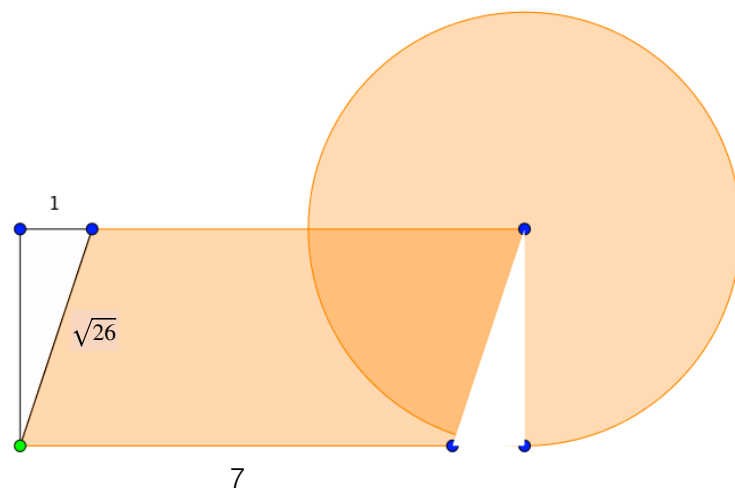
* siehe ggfs. unter gleichschenklige Dreiecke

Schere und Kleber

78

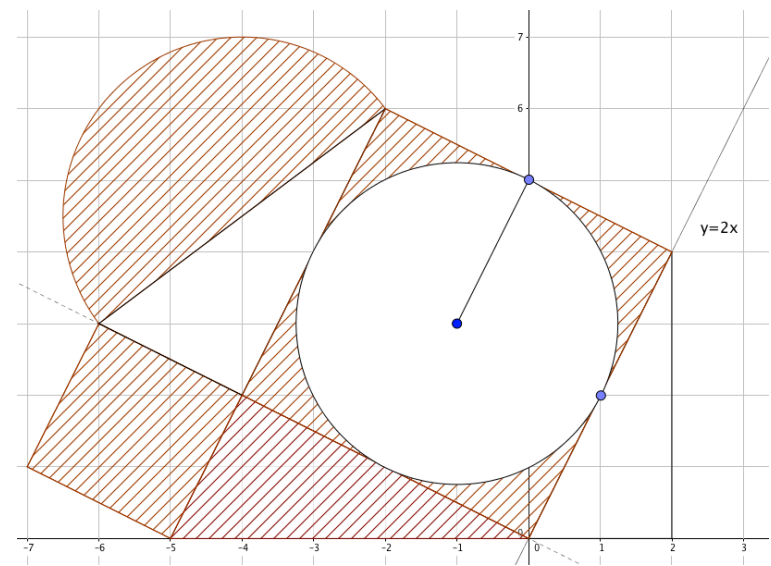


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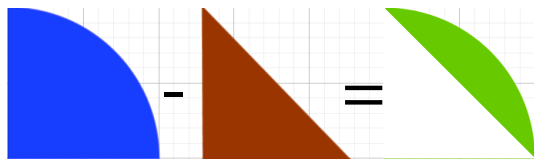
Schere und Kleber

80



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Tipps:



Berechne die grüne Fläche

Wer besser sehen kann, muss weniger rechnen!

