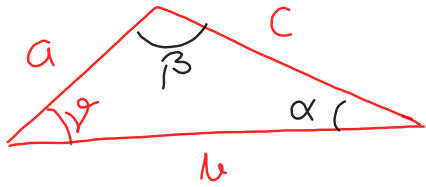


Trigonilause

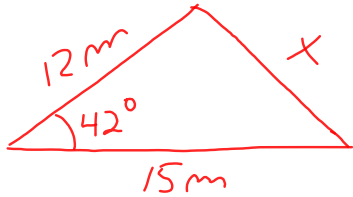


$$c^2 = a^2 + b^2 - 2ab \cos \gamma$$

$$a^2 = b^2 + c^2 - 2bc \cos \alpha$$

$$b^2 = a^2 + c^2 - 2ac \cos \beta$$

Esim.

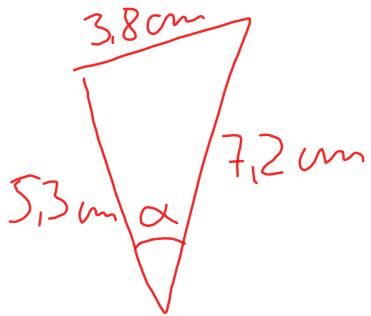


Trigonilauseella:

$$x^2 = 12^2 + 15^2 - 2 \cdot 12 \cdot 15 \cdot \cos 42^\circ \quad || \sqrt{\quad}$$

$$x = \sqrt{12^2 + 15^2 - 2 \cdot 12 \cdot 15 \cdot \cos 42^\circ} = 10,07 \approx 10 \text{ m}$$

Esim. Ratkaise α



Trigonilauseella:

$$3,8^2 = 5,3^2 + 7,2^2 - 2 \cdot 5,3 \cdot 7,2 \cos \alpha$$

$$3,8^2 - 5,3^2 - 7,2^2 = -2 \cdot 5,3 \cdot 7,2 \cdot \cos \alpha \quad || : (-2 \cdot 5,3 \cdot 7,2)$$

$$\cos \alpha = \frac{3,8^2 - 5,3^2 - 7,2^2}{-2 \cdot 5,3 \cdot 7,2}$$

$$\alpha = \cos^{-1} \left(\frac{3,8^2 - 5,3^2 - 7,2^2}{-2 \cdot 5,3 \cdot 7,2} \right) = 30,89^\circ \approx 30,9^\circ$$

```
solve(3.8^2=5.3^2+7.2^2-2*5.3*7.2*cos(x)
{x=360*constn(1)-30.89636502, x=360*constn(2)+30.89636502}
```

Trigonometrisen
funktionin jaksot