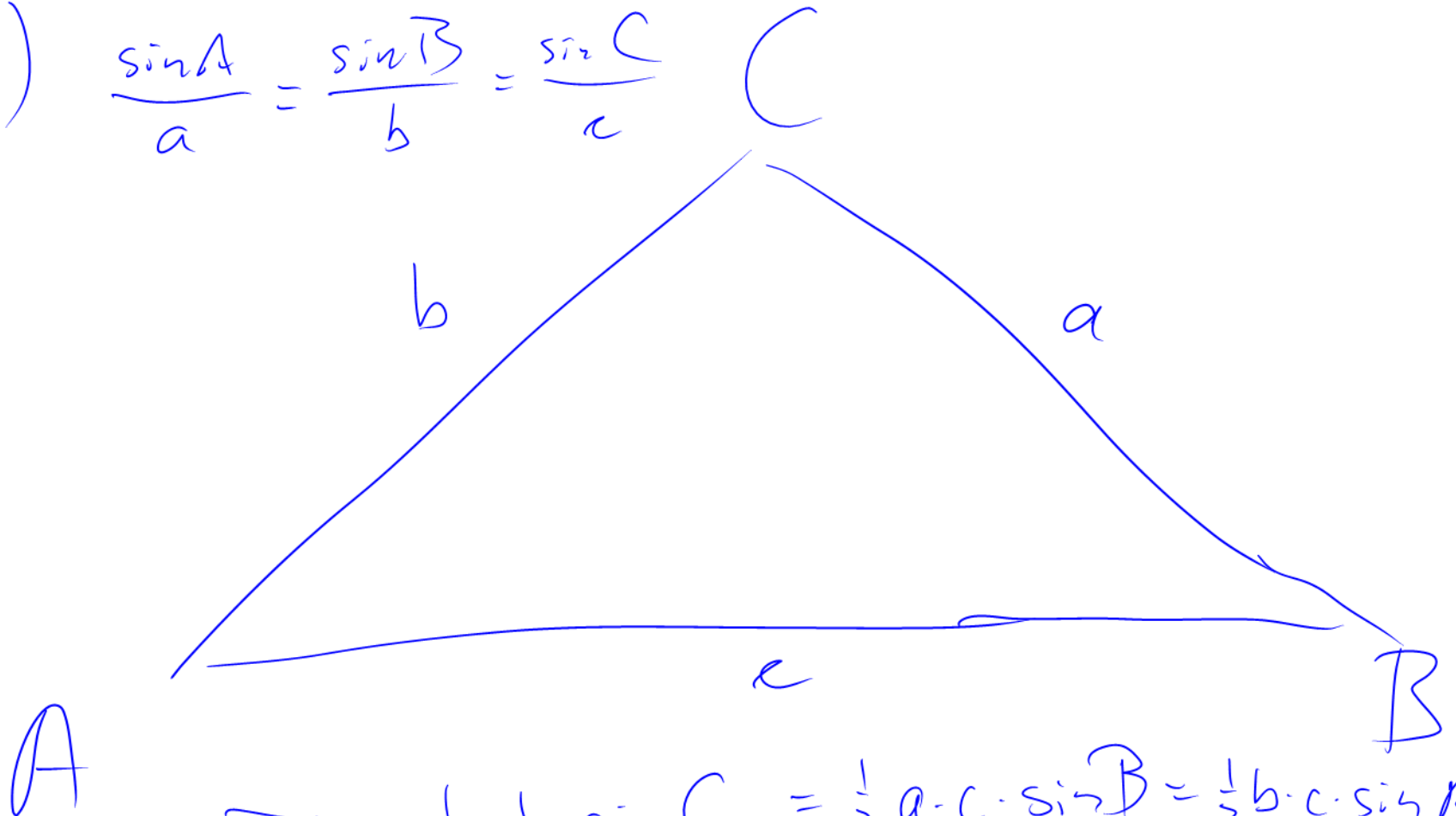


# Matematik B Onsdag 2/9 2015

- Fremmødereregistrering.
- Meddelelser. Spørgsmål?
- Opsamling fra sidst:
  - En frivillig til tavlen: Beviset for faktorisering af andengradspolynomium.
- Nyt stof:  
Arealformel og sinusrelationer AB1, side 296-298  
Opgaver – Se nedenfor

# VILKÄRLIG TRIKANT

$$(28) \quad \frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$



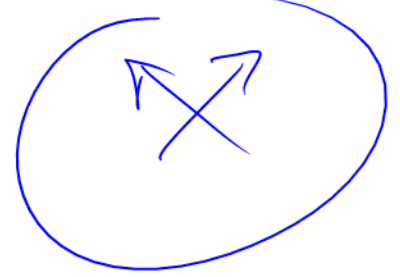
$$(29) \quad T = \frac{1}{2} ab \cdot \sin C = \frac{1}{2} a \cdot c \cdot \sin B = \frac{1}{2} b \cdot c \cdot \sin A$$

$$\frac{\sin A}{a} = \frac{\sin B}{b}$$

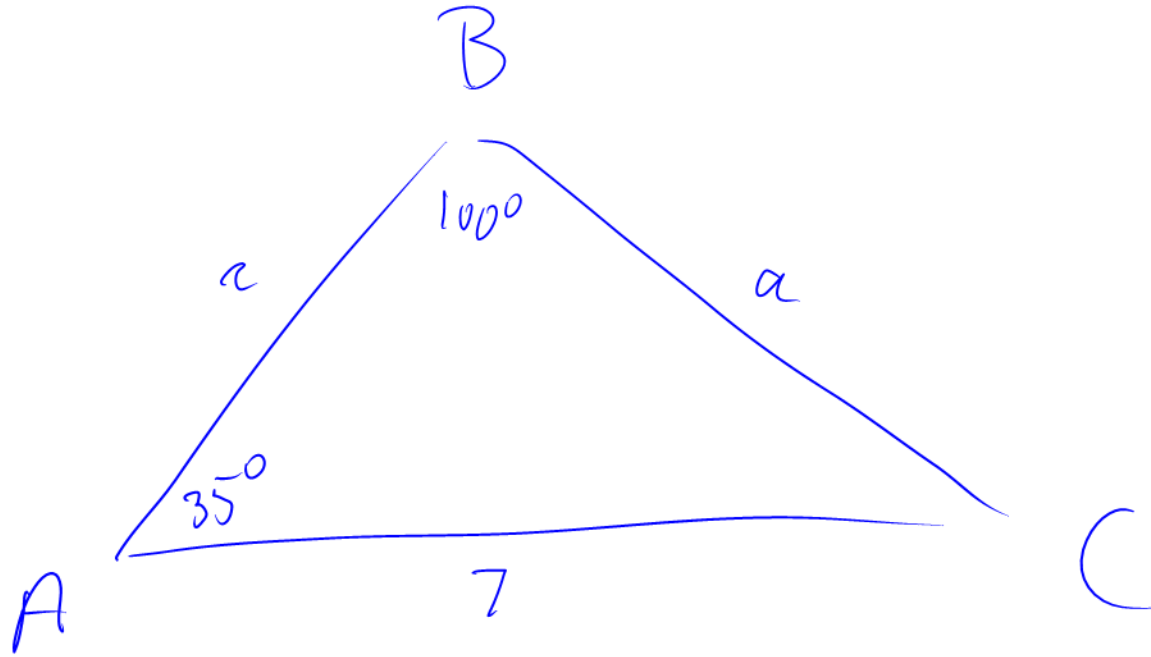
$$b \cdot \sin A = a \cdot \sin B$$

$$\frac{b \cdot \cancel{\sin A}}{\cancel{\sin A}} = \frac{a \cdot \sin B}{\sin A}$$

$$\frac{b}{\sin B} = \frac{a}{\sin A}$$



# BEISPIEL



$$C = 180^\circ - 35^\circ - 100^\circ = \underline{\underline{45^\circ}}$$

$$\frac{a}{\sin A} = \frac{b}{\sin B}$$

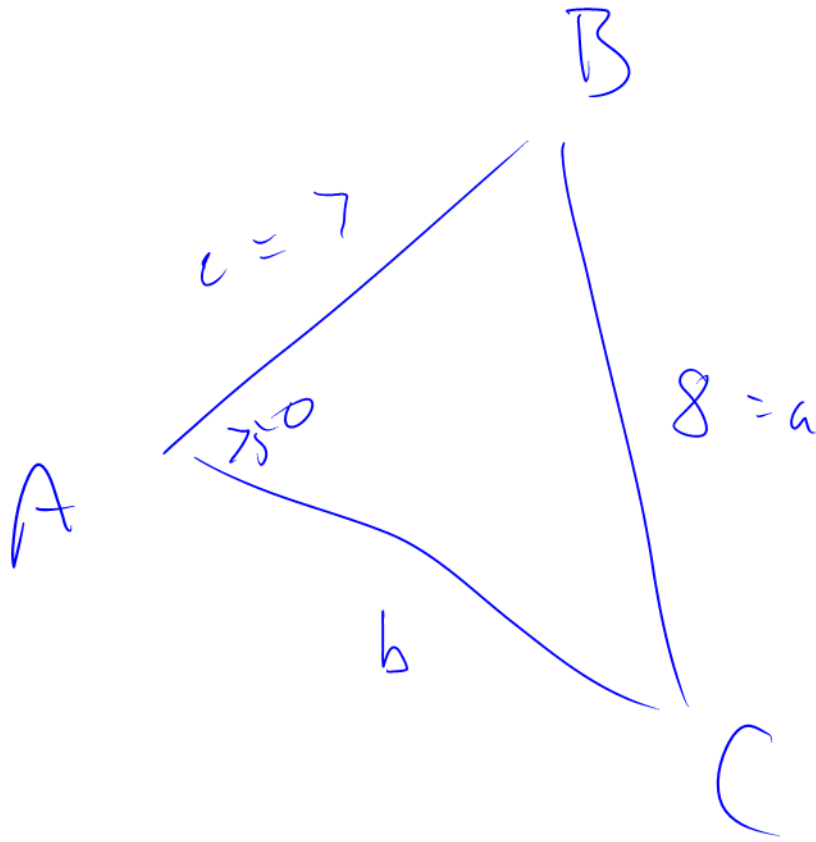
$$a = \sin A \cdot \frac{b}{\sin B} = \sin 35^\circ \cdot \frac{7}{\sin 100^\circ}$$

$$\underline{\underline{a = 4,08}}$$

$$\frac{a}{\sin C} = \frac{b}{\sin B}$$

$$a = \sin C \cdot \frac{b}{\sin B}$$

$$c = \sin 45^\circ \cdot \frac{7}{\sin 100^\circ} = \underline{\underline{5,03}}$$



$$\frac{\sin C}{c} = \frac{\sin A}{a}$$

$$\sin C = a \cdot \frac{\sin A}{a}$$

$$\sin C = 7 \cdot \frac{\sin 75^\circ}{8}$$

$$C = \sin^{-1} \left( 7 \cdot \frac{\sin 75^\circ}{8} \right)$$

$$\underline{\underline{C = 57,7^\circ}}$$

$$B = 180^\circ - 75^\circ - 57,7^\circ = \underline{\underline{47,3^\circ}}$$

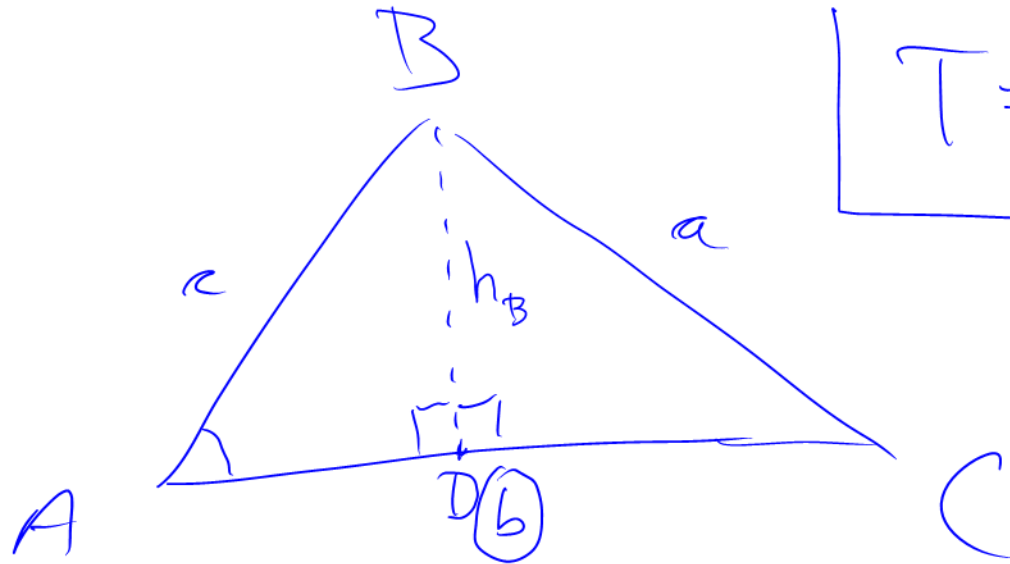
$$\frac{b}{\sin B} = \frac{a}{\sin A}$$

$$b = \sin B \frac{a}{\sin A} = \sin 47,3^\circ \cdot \frac{8}{\sin 75^\circ}$$

$$b = 6,09$$

6,09

# BEWIS FÜR AREA FORMELZ (Version bcA)



$$T = \frac{1}{2} \cdot b \cdot c \cdot \sin A$$

$$\triangle ADB: h_B = c \cdot \sin A$$

$$\left( \sin A = \frac{h_B}{c} \right)$$

$$T = \frac{1}{2} h_B \cdot b = \frac{1}{2} \cdot c \cdot \sin A \cdot b = \underline{\underline{\frac{1}{2} b \cdot c \cdot \sin A}}$$



$$T = \frac{1}{2}bc \sin A = \frac{1}{2}ac \sin B = \frac{1}{2}ab \sin C$$

GANG MIT 2

$$bc \sin A = ac \sin B = ab \sin C$$

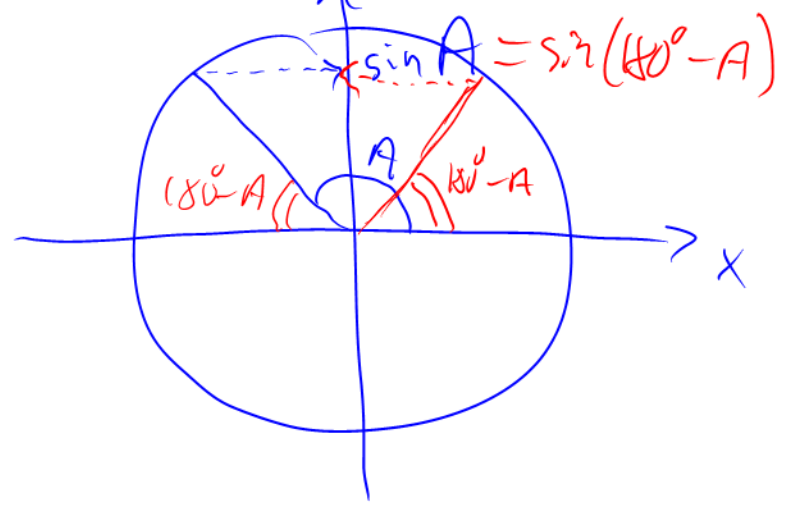
DIVIDIERE MIT  $abc$

$$\frac{\cancel{bc} \sin A}{\cancel{abc}} = \frac{\cancel{ac} \sin B}{\cancel{abc}} = \frac{\cancel{ab} \sin C}{\cancel{abc}}$$

$$\boxed{\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}}$$

Hvis  $\angle A$  over  $90^\circ$

ENHEDSCIRKEL



B



$\triangle ADB$   
 $\uparrow$   
 ret.

GRUNDLINJE

$$h_B = c \cdot \sin(180^\circ - A) = \underline{c \cdot \sin A}$$

$$\begin{aligned} |T| &= \frac{1}{2} h_B \cdot g \\ &= \frac{1}{2} \cdot c \cdot \sin A \cdot b \end{aligned}$$

# Opgaver i sinusrelationer

1. Beregn de resterende stykker i trekant ABC når  $\angle A = 27^\circ$ ,  $\angle B = 81^\circ$  og  $c = 12,5\text{cm}$
2. Beregn de resterende stykker i trekant ABC når  $\angle A = 51^\circ$ ,  $\angle B = 105^\circ$  og  $a = 16\text{cm}$
3. Beregn de resterende stykker i trekant ABC når  $\angle A = 25^\circ$ ,  $a = 15\text{cm}$  og  $c = 10\text{cm}$
4. Beregn de resterende stykker i trekant ABC når  $\angle A = 25^\circ$ ,  $a = 7\text{cm}$  og  $c = 10\text{cm}$   
OBS! Der er to løsninger til opg. 4.