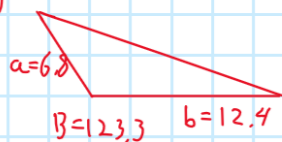


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Opgave 108

a)



Find A

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

$$\frac{b}{\sin(B)} \cdot \sin(A) = a \quad \text{l\u00f8s med } \sin(A)$$

$$\sin(A) = \frac{a}{\frac{b}{\sin(B)}} \quad \text{Divider med } \frac{b}{\sin(B)}$$

$$\sin(A) = \frac{a \cdot \sin(B)}{b} \quad \text{Reducer}$$

$$A = \sin^{-1}\left(\frac{a \cdot \sin(B)}{b}\right) \quad \text{Sin}^{-1}$$

$$A = \sin^{-1}\left(\frac{6.8 \cdot \sin(123.3)}{12.4}\right) \quad \text{inds\u00e6t \u00e5l}$$

$$A = \sin^{-1}(0.45) \quad \text{udregn br\u00f8k}$$

$$A = 27.2 \quad \text{Sin}^{-1}$$

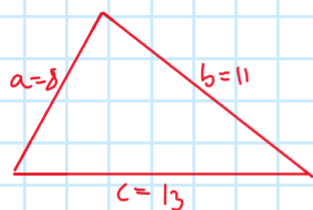
$$\begin{aligned} C &= 180 - A - B \\ &= 180 - 27.2 - 123.3 \\ &= 29.4 \end{aligned} \quad \begin{array}{l} \text{inds\u00e6t \u00e5l} \\ \text{minus} \end{array}$$

$$\text{Area} = \frac{1}{2} \cdot a \cdot b \cdot \sin(C)$$

$$\begin{aligned} &= \frac{1}{2} \cdot 6.8 \cdot 12.4 \cdot \sin(29.4) && \text{inds\u00e6t \u00e5l} \\ &= 42.2 \cdot \sin(29.4) && \text{l\u00f8s} \\ &= 42.2 \cdot 0.5 && \text{sin} \\ &= \underline{\underline{20.7}} \end{aligned}$$

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b)

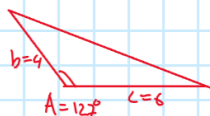


$$\begin{aligned}
 S &= \frac{1}{2} \cdot (a + b + c) \\
 &= \frac{1}{2} \cdot (8 + 11 + 13) && \text{indsæt tal} \\
 &= \frac{1}{2} \cdot 32 && \text{plus} \\
 &= 16 && \text{brøge}
 \end{aligned}$$

$$\begin{aligned}
 \text{Area} &= \sqrt{S \cdot (S - a) \cdot (S - b) \cdot (S - c)} \\
 &= \sqrt{16 \cdot 8 \cdot 5 \cdot 5} && \text{indsæt tal} \\
 &= \sqrt{1920} && \text{brøge} \\
 &= 43,8 && \text{vdræg}
 \end{aligned}$$

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c)



$$\begin{aligned} \text{Area} &= \frac{1}{2} \cdot b \cdot c \cdot \sin(A) \\ &= \frac{1}{2} \cdot 4 \cdot 6 \cdot \sin(127^\circ) \\ &= 12 \cdot \sin(127^\circ) \\ &= 9,58 \end{aligned}$$

indsæt tal
Gange
Udregn

find r

$$\begin{aligned} S &= \frac{1}{2} (a + b + c) \\ &= \frac{1}{2} (8,99 + 4 + 6) \\ &= \frac{1}{2} \cdot 18,99 \\ &= 9,495 \end{aligned}$$

indsæt tal
Plus
Udregn

$$\begin{aligned} a &= \sqrt{b^2 + c^2 - 2bc \cos(A)} \\ &= \sqrt{16 + 36 - 2 \cdot 4 \cdot 6 \cdot \cos(127^\circ)} \\ &= \sqrt{16 + 36 - (-28,8)} \\ &= \sqrt{80,8} \\ &= 8,99 \end{aligned}$$

indsæt tal
Gange
Sum

$$\text{Area} = r \cdot S$$

$$r = \frac{\text{Area}}{S}$$

Divider med S

$$\begin{aligned} r &= \frac{9,58}{9,495} \\ &= 1 \end{aligned}$$

indsæt tal
Udregn

Find R

$$\text{Area} = \frac{a \cdot b \cdot c}{4 \cdot R}$$

$$\text{Area} \cdot 4 \cdot R = a \cdot b \cdot c \quad \text{Gang med } 4R$$

$$R = \frac{a \cdot b \cdot c}{\text{Area} \cdot 4} \quad \text{Divider med Area} \cdot 4$$

$$R = \frac{8,99 \cdot 4 \cdot 6}{9,58 \cdot 4} \quad \text{indsæt tal}$$

$$= \frac{215,9}{9,58 \cdot 4} \quad \text{Udregn tæller}$$

$$= \frac{215,9}{38,32} \quad \text{Udregn nævner}$$

$$= 5,6 \quad \text{Udreg brøk}$$