Æfing 3.7

② $c = 48°$ $a = 9$ $c = 12,5$ ← Margf. $m/9$ til að einangra $(\sin A)$

$c → \dfrac{12,5}{\sin(48)} = \dfrac{9}{\sin(A)} \Rightarrow \dfrac{\sin(48)}{12,5} = \dfrac{\sin(A)}{9} \Rightarrow \dfrac{9 \times \sin(48)}{12,5} = \sin(A)$

$A = \dfrac{9 \times \sin(48)}{12,5} = \sin(A) = 32,35$

$B = 180 - 32,35 - 48 = \boxed{99,65°}$

$b = \dfrac{b}{\sin(99,65)} = \dfrac{12,5}{\sin(48)} \Rightarrow b = \dfrac{12,5 \cdot \sin(99,65)}{\sin(48)} = 16.58$

③ $A = \boxed{35°}$ $a = 35$ $b = 55$

Finnum horn $B → \boxed{\dfrac{\sin(B)}{55} = \dfrac{\sin(35)}{35}} → \sin(B) = \dfrac{\sin(35) \cdot 55}{35}$

$\sin^{-1}(B) = \dfrac{\sin(35) \cdot 55}{35} = \boxed{64,3}$

Finnum $C = 180 - 35 - 64,33 = \boxed{80,67°}$

Hornin $= (ABC) = 35°, 64,33°, 80,67°$

Finnum $c = \dfrac{c}{\sin(80,67)} = \dfrac{35}{\sin(35)} \Rightarrow c = \dfrac{35 \cdot \sin(80,67)}{\sin(35)} = \underline{60,22}$

seinni lausn? $B = 180 - 64,33 = 115,67 →$ hin lausnin?

Finnum ci seinni útreikning

$(ABC) = 180° - 115,67° - 35° = \boxed{29,}$

$\qquad\qquad\qquad\qquad\qquad B \quad A$

$\dfrac{c}{\sin(29,33)} = \dfrac{35}{\sin(35)} = c = \dfrac{35 \cdot \sin(29,33)}{\sin(35)} = 29,89$

④

$B = 45°$ $b = 5$ $c = 4,3$

din egen figna grädn
sin under Plana längd

$$\frac{5}{\sin(60)} = \frac{4,3}{\sin(C)} \rightarrow \frac{\sin(c)}{4,3} = \frac{\sin(60)}{5}$$

$$C = \sin^{-1}\left(\frac{4,3 \cdot \sin(60)}{5}\right) = 48,14°$$
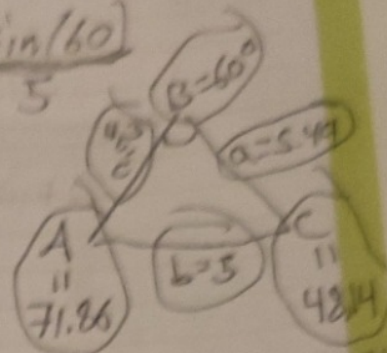
$$\frac{a}{\sin(71.86)} = \frac{5}{\sin(60)} =$$
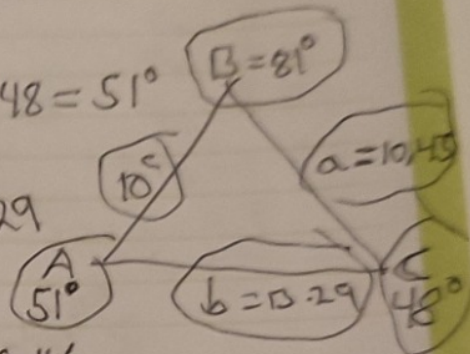
$$a = \frac{5 \cdot \sin(71.86)}{\sin(60)} = 5.49$$

Svara $A = 71.86$ $B = 60°$ $C = 48.14$
$a = 5.49$ $b = 5$ $c = 4,3$

⑤ $B = 81°$ $C = 48°$ $c = 10$ $A = 180 - 81 - 48 = 51°$

$$\frac{b}{\sin(81)} = \frac{10}{\sin(48)} \rightarrow b = \frac{10 \cdot \sin(81)}{\sin(48)} = 13.29$$

$$\frac{a}{\sin(51)} = \frac{10}{\sin(48)} \Rightarrow a = \frac{10 \cdot \sin(51)}{\sin(48)} = 10,46$$
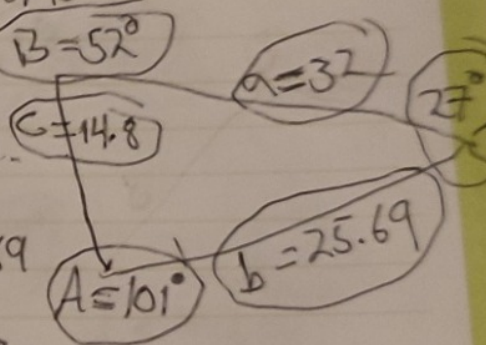
⑦

$A = 101°$ $C = 27°$ $a = 32$

$$\frac{b}{\sin(52)} = \frac{32}{\sin(101)} \rightarrow b = \frac{32 \cdot \sin(52)}{\sin(101)} \Rightarrow 25.69$$

$$\frac{c}{\sin(27)} = \frac{25.69}{\sin(52)} \Rightarrow c = \frac{25.69 \cdot \sin(27)}{\sin(52)} = 14.8$$

$B = 180 - 101 - 27 = 52°$

$B = 52°$
$C = 14.8$
$a = 32$
$A = 101°$
$b = 25.69$

9) $a=6 \quad c=4 \quad C=33°$

$$\frac{\sin(A)}{6} = \frac{\sin(33)}{4} = \sin^{-1}(A) = \frac{6 \cdot (\sin(33))}{4} = 54.78$$

$B = 180 - 54.78 - 33 = 92.22$

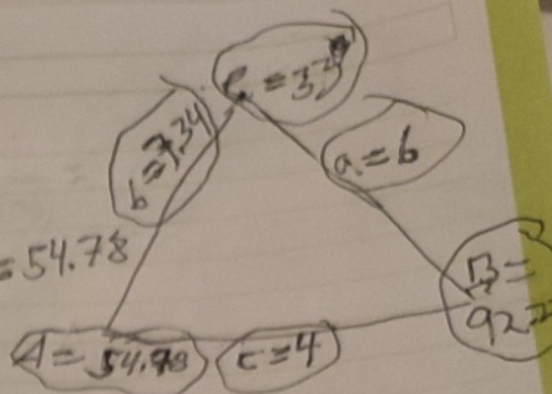$$b = \frac{b}{\sin(92.22)} = \frac{4}{\sin(33)} \Rightarrow b = \frac{4 \cdot \sin(92.22)}{\sin(33)} = 7.34$$

$A = 180 - 54.78 = A = 125.22$

$B \; 180 - 33 - 125.22 = 21.78 \rightarrow$ seinni þríhyrningur

$C = 180 - 21.78 - 125.22 = 33$

$$\frac{b}{\sin(21.78)} = \frac{4}{\sin(33)} \Rightarrow b = \frac{4 \cdot \sin(21.78)}{\sin(33)} = 2.73$$

$A_1 = 54.78$
$A_2 = 125.22$
$B = 92.22$
$B_2 = 21.78$
$C_1 = 33°$
$C_2 = 33°$
$a_1 = 6$
$a_2 = 6$
$b_1 = 7.34$
$b_2 = 2.73$
$c_1 = 4$
$c_2 = 4$

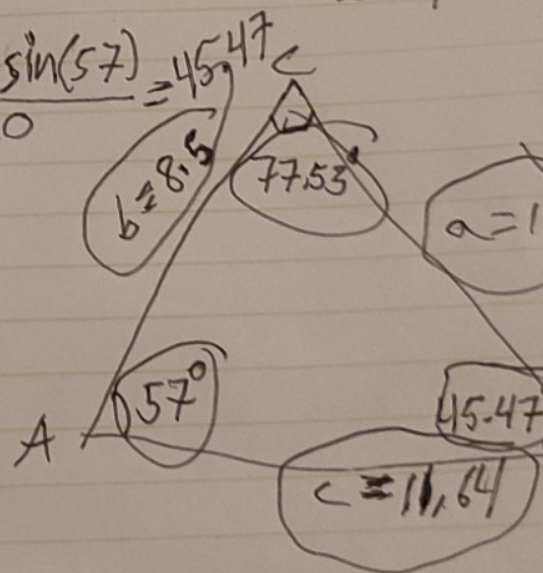**11)** $A = 57° \quad a = 10 \quad b = 8.5$

$$B = \frac{\sin(B)}{8.5} = \frac{\sin(57)}{10} \Rightarrow \sin^{-1}(B) = \frac{8.5 \cdot \sin(57)}{10} = 45.47$$

$$\frac{c}{\sin(77.55)} = \frac{10}{\sin(57°)} =$$

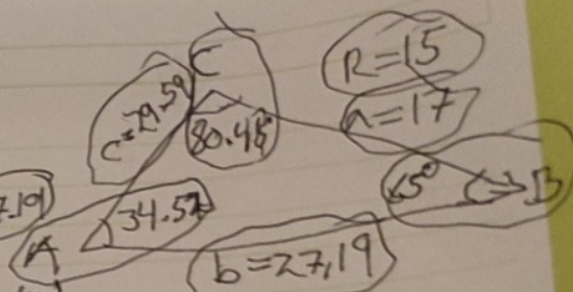$$\Rightarrow c = \frac{10 \cdot \sin(77.55)}{\sin(57)} = 11.64$$

③ $B = 65°$ $a = 17$ $R = 15$

$$\frac{b}{\sin(65)} = 2 \cdot 15 = b = \sin(65) \cdot 30 = \boxed{27.19}$$

$$\frac{\sin(A)}{17} = \frac{\sin(65)}{27.19} \Rightarrow \sin^{-1}(A) = \frac{17 \cdot \sin(65)}{27.19} = 34.51$$

$$\frac{c}{\sin(80.49)} = \frac{17}{\sin(34.51)} \Rightarrow c = \frac{17 \cdot \sin(80.49)}{\sin(34.51)} = \boxed{29.59}$$

$\boxed{C}$ $c = 29.59$ $\boxed{80.49}$ $\boxed{34.51}$ $\boxed{A}$ $\boxed{b = 27.19}$ $\boxed{R=15}$ $\boxed{a=17}$ $\boxed{65°}$ $\boxed{B}$

Afing 3.3 B15 1

$c^2 = a^2 + b^2 - 2 \cdot a \cdot b \cdot \cos(c)$

① $C = 30°$ $a = 13$ $b = 20$

$c^2 = 13^2 + 20^2 - 2 \cdot 13 \cdot 20 \cdot \cos(30)$
$c^2 = 569 - 520 \cdot \cos(30)$
$c^2 = 569 - 520 \cdot 0.87$
$c^2 = 569 - 450 \cdot 33$
$c^2 = \sqrt{118.67}$
$c = 10.89$

$b = 20$ $30°$ $a = 13$

A 36.65 $113.35°$ B

$C = 10.89$
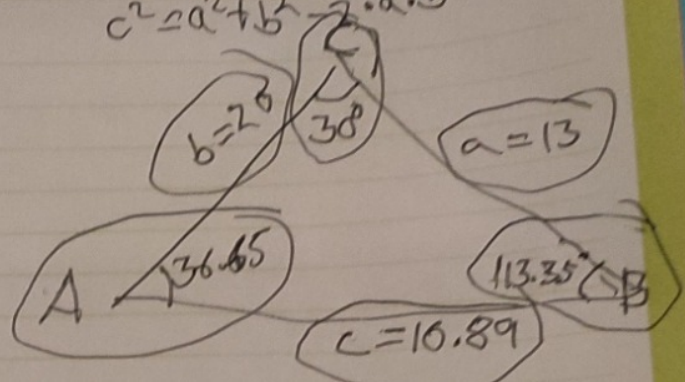
$\dfrac{\sin(A)}{13} = \dfrac{\sin(30)}{10.89} \Rightarrow \sin^{-1}(A) = \dfrac{13 \cdot \sin(30)}{10.89} = 36.65$

② $A = 119°$ $b = 16$ $c = 52$

$a^2 = 16^2 + 52^2 - 2 \cdot 16 \cdot 52 \cdot \cos(119)$
$a = \sqrt{2960 - 1664 \cdot \cos(119)}$
$a = \sqrt{2960 + 806.72}$
$a = \sqrt{3766.72}$
$a = 61.37$

$b = 16$ C 47.82 $a = 61.37$

A $119°$ $13.18°$

$C = 52$

$\dfrac{\sin(C)}{52} = \dfrac{\sin(119)}{61.37} \xRightarrow{\sin^{-1}} C = \left(\dfrac{52 \cdot \sin(119)}{61.37}\right) = C = 47.82$