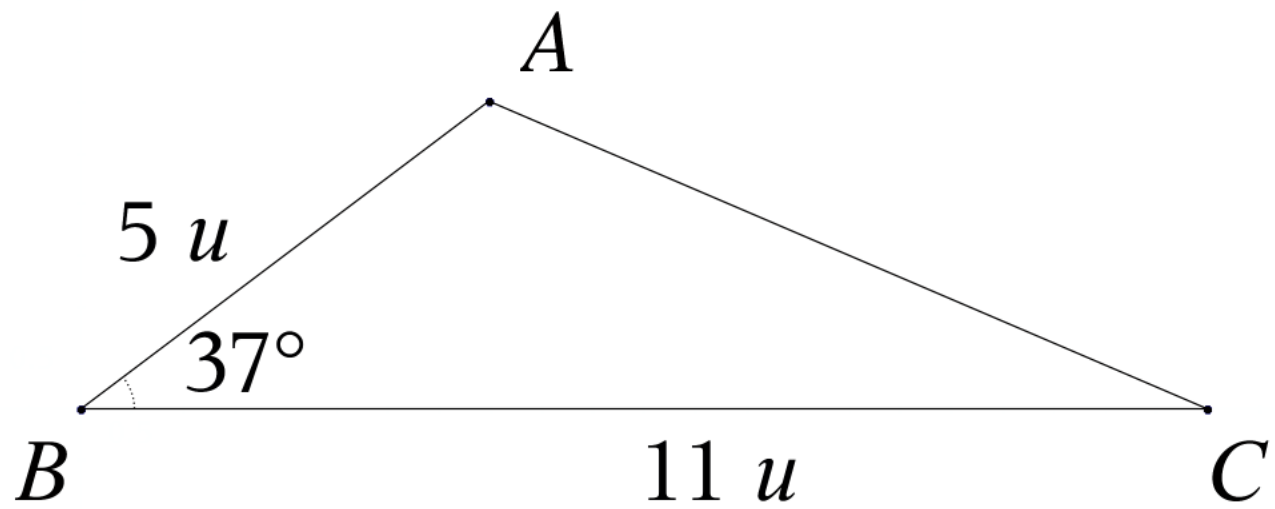
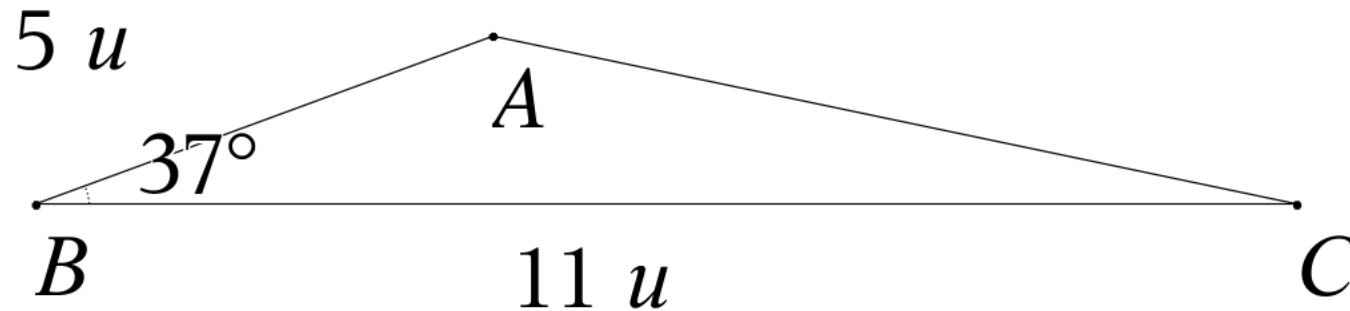
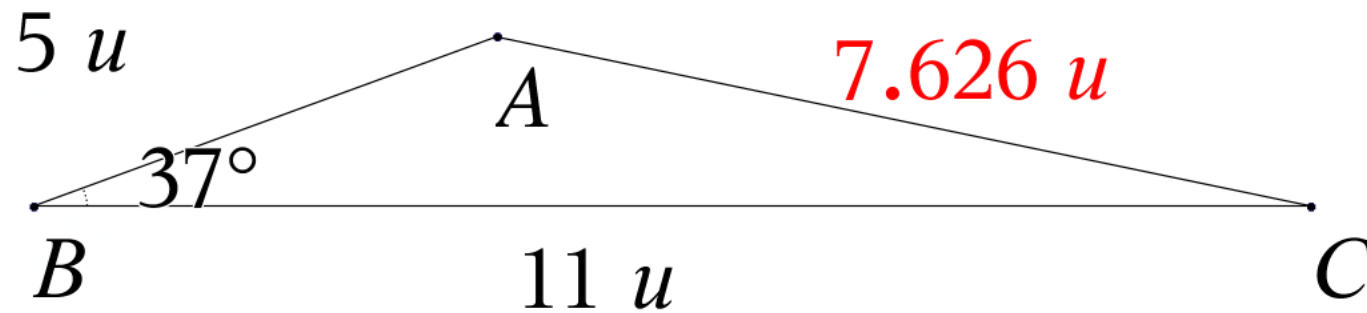


Problem 5



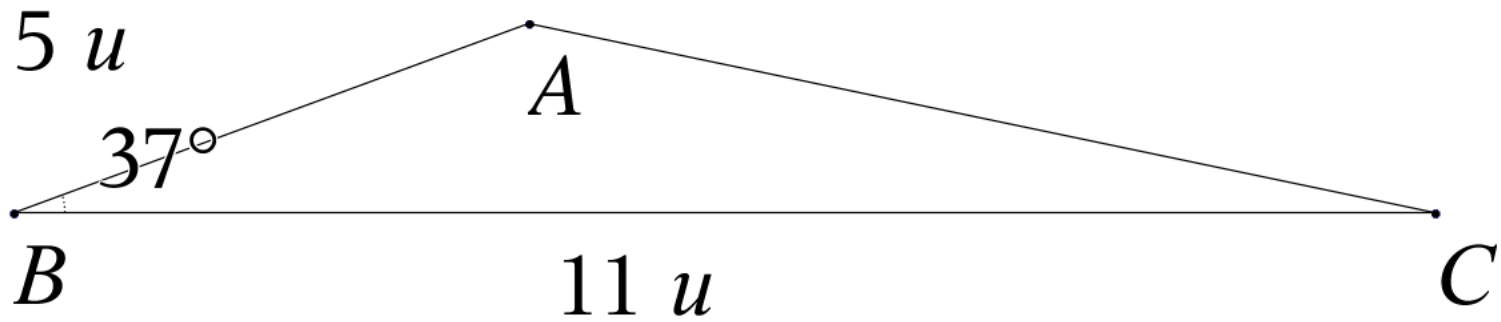


$$\begin{aligned}
 b^2 &= a^2 + c^2 - 2a \cdot c \cdot \cos B \\
 &= (11.)^2 + (5.)^2 - 2(11.) \cdot (5.) \cdot \cos(37) \\
 &= 146. - 110. \cos(37)
 \end{aligned}$$

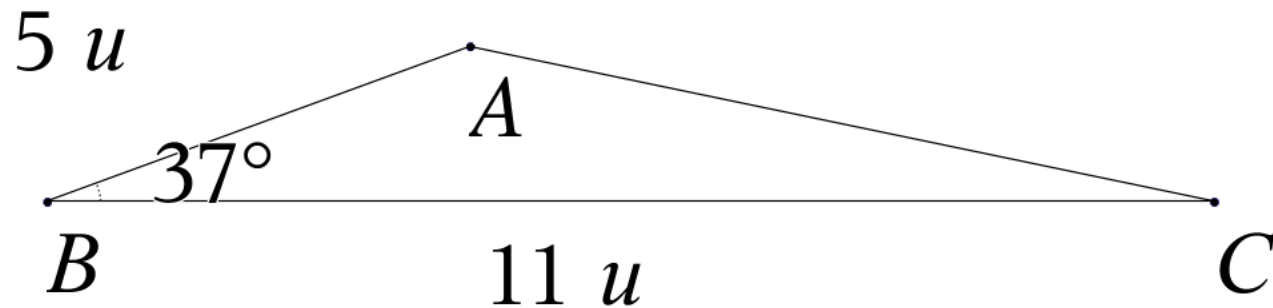


$$b = \sqrt{146. - 110. \cos(37)}$$

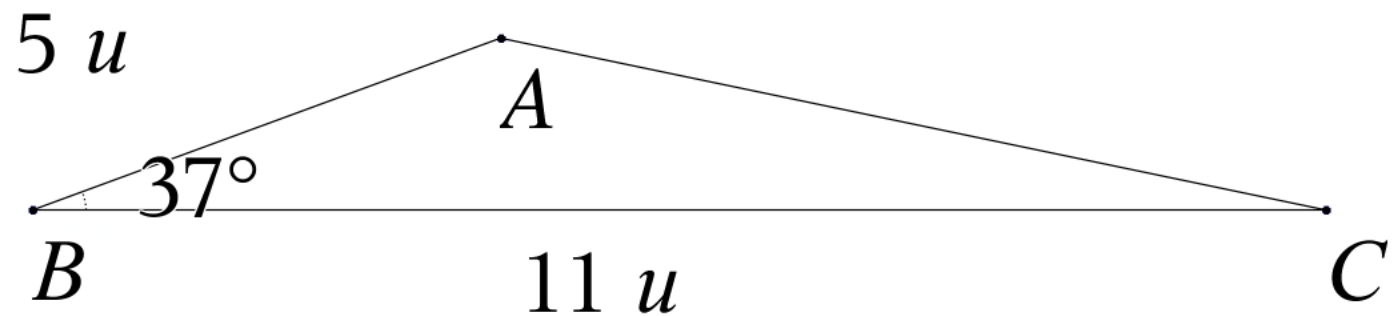
$$b \approx \sqrt{58.1501} \approx 7.626$$



$$\frac{\sin A}{11.} = \frac{\sin(37)}{7.626} = \frac{\sin C}{5.}$$

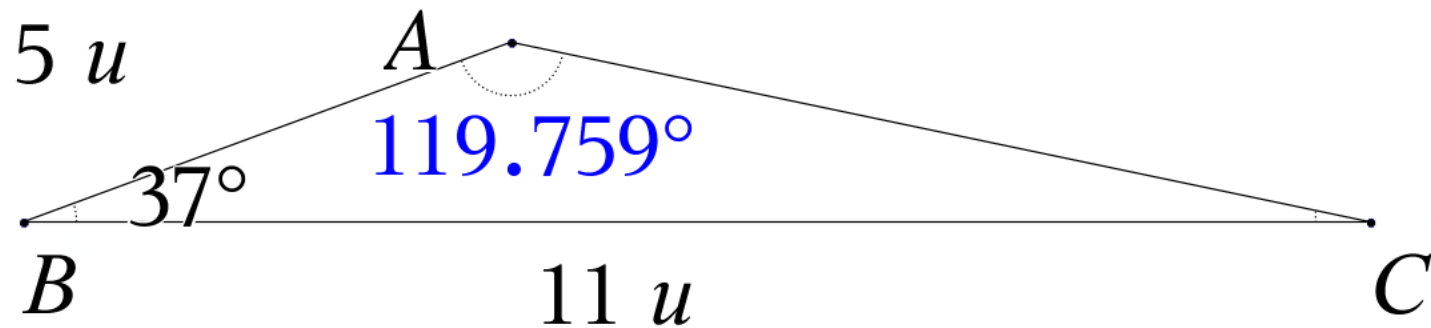


$$\frac{\sin A}{11.} = \frac{\sin(37)}{7.626} \rightarrow \sin A = \frac{11. \sin(37)}{7.6256}$$



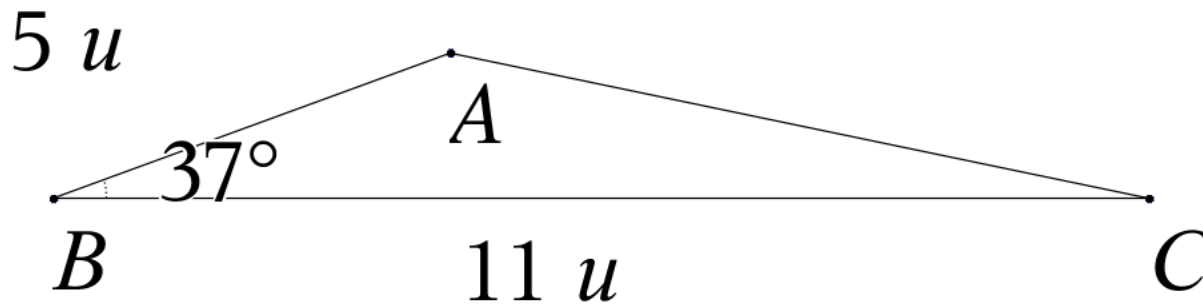
$$\frac{\sin A}{11.} = \frac{\sin(37^\circ)}{7.626} \rightarrow \sin A = \frac{11. \sin(37^\circ)}{7.6256}$$

$$m\angle A = \sin^{-1}\left(\frac{11. \sin(37^\circ)}{7.626}\right)$$



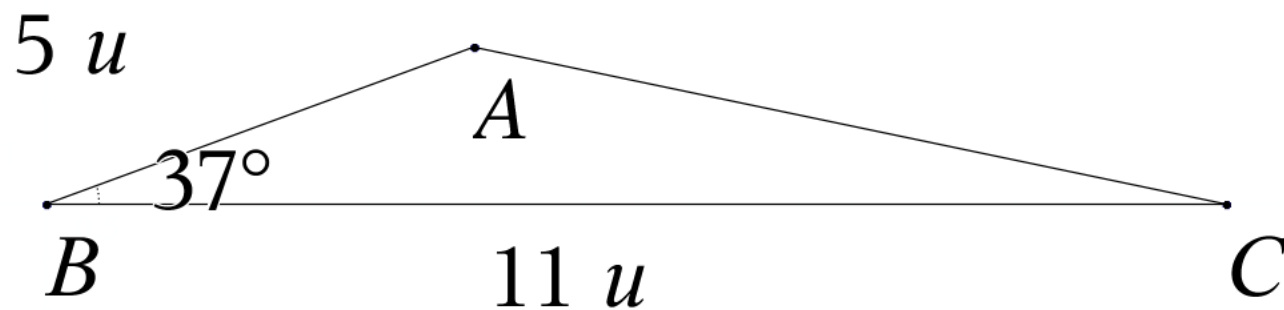
$$\frac{\sin A}{11} = \frac{\sin(37)}{7.626} \rightarrow \sin A = \frac{11 \cdot \sin(37)}{7.6256}$$

$$m\angle A \approx \sin^{-1}(0.868) \approx 60.241^\circ$$



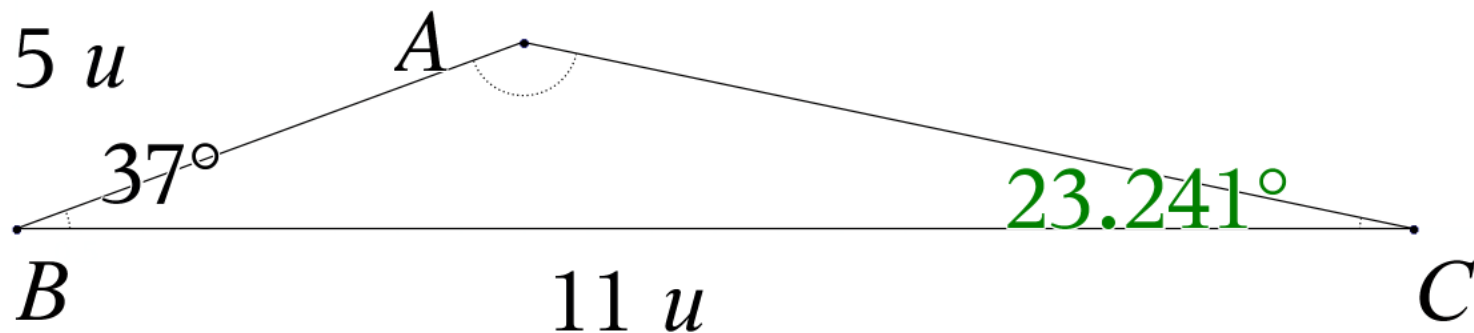
$$\frac{\sin C}{5.} = \frac{\sin(37)}{7.626} \rightarrow \sin C = \frac{5. \sin(37)}{7.6256}$$





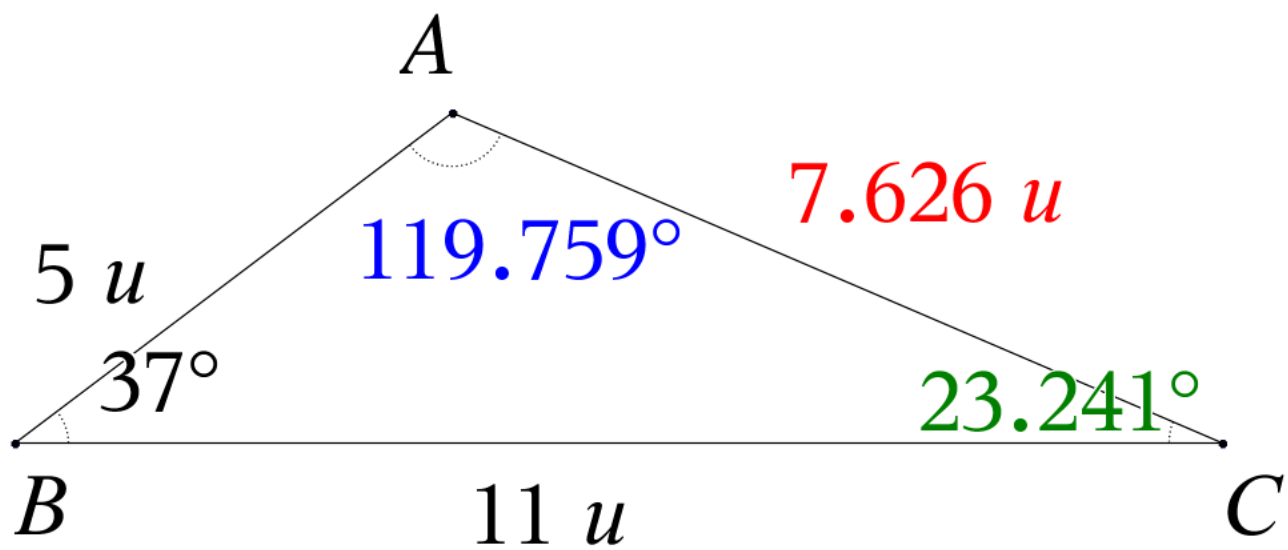
$$\frac{\sin C}{5.} = \frac{\sin(37^\circ)}{7.626} \rightarrow \sin C = \frac{5. \sin(37^\circ)}{7.6256}$$

$$m\angle C = \sin^{-1}\left(\frac{5. \sin(37^\circ)}{7.626}\right)$$



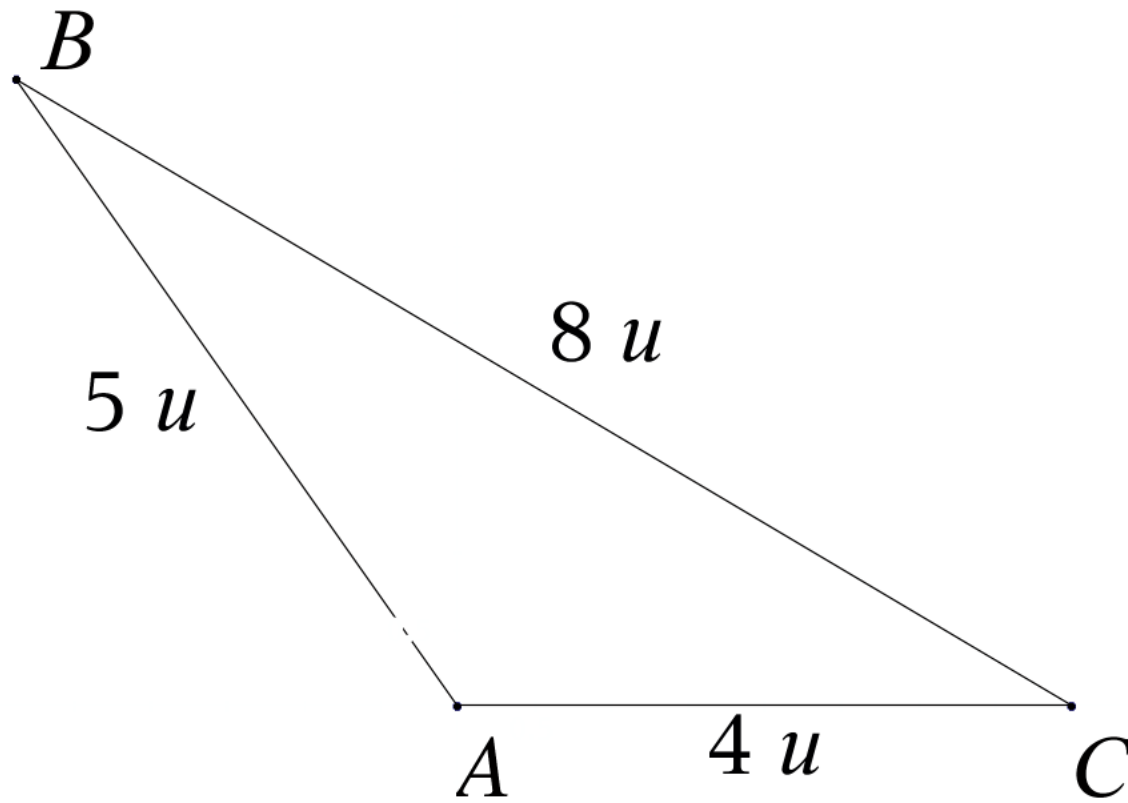
$$\frac{\sin C}{5} = \frac{\sin(37)}{7.626} \rightarrow \sin C = \frac{5 \cdot \sin(37)}{7.6256}$$

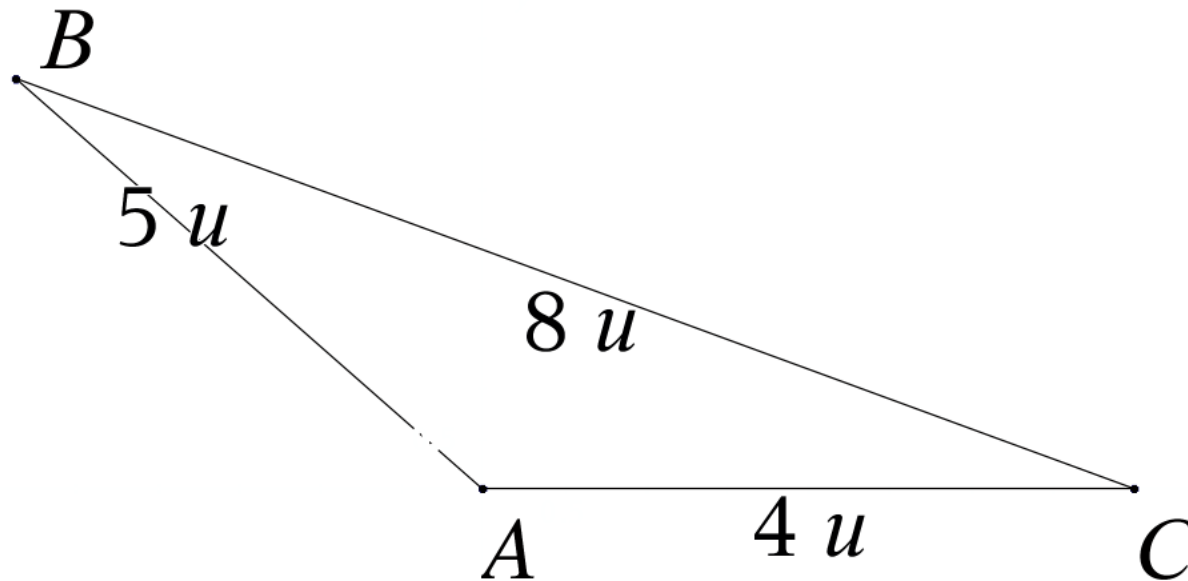
$$m\angle C \approx \sin^{-1}(0.395) \approx 23.241^\circ$$





Problem 6

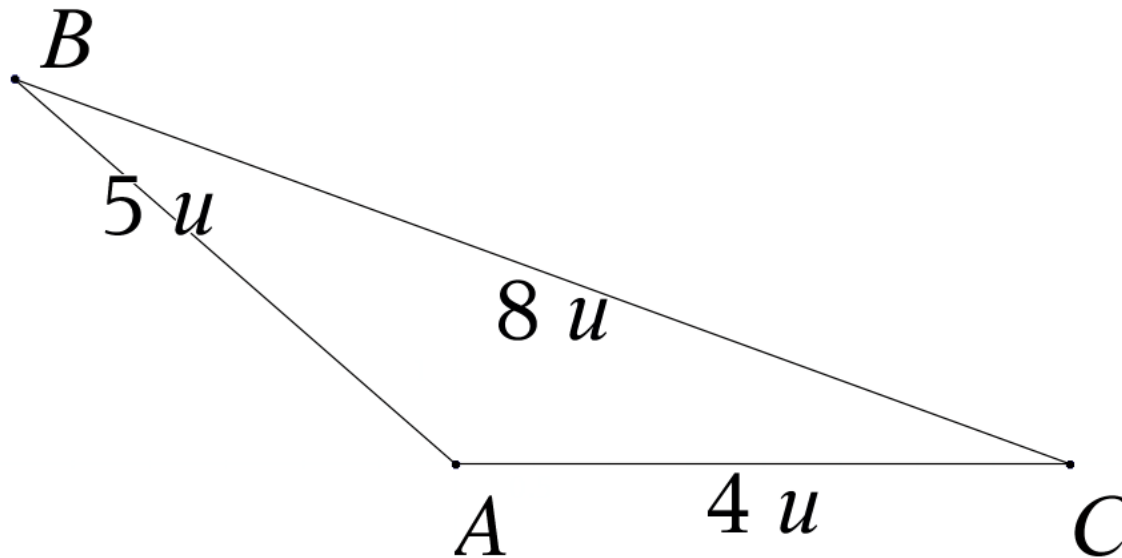




### *Triangle Inequality Test 1*

$$|4. - 5. | < 8. < 4. + 5.$$

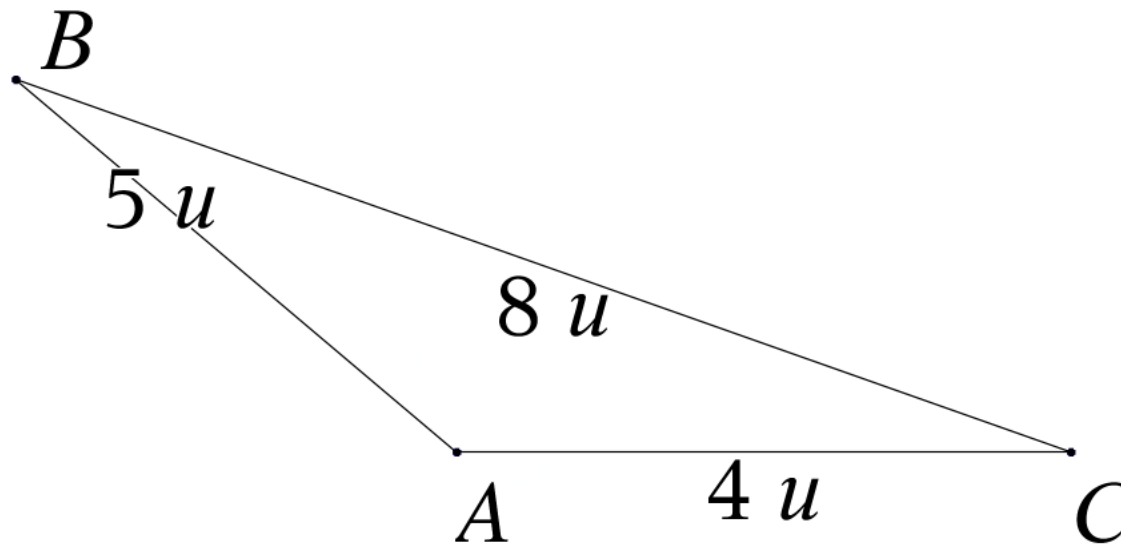
$$1. < 8. < 9.$$



### *Triangle Inequality Test 2*

$$|8. - 5. | < 4. < 8. + 5.$$

$$3. < 4. < 13.$$

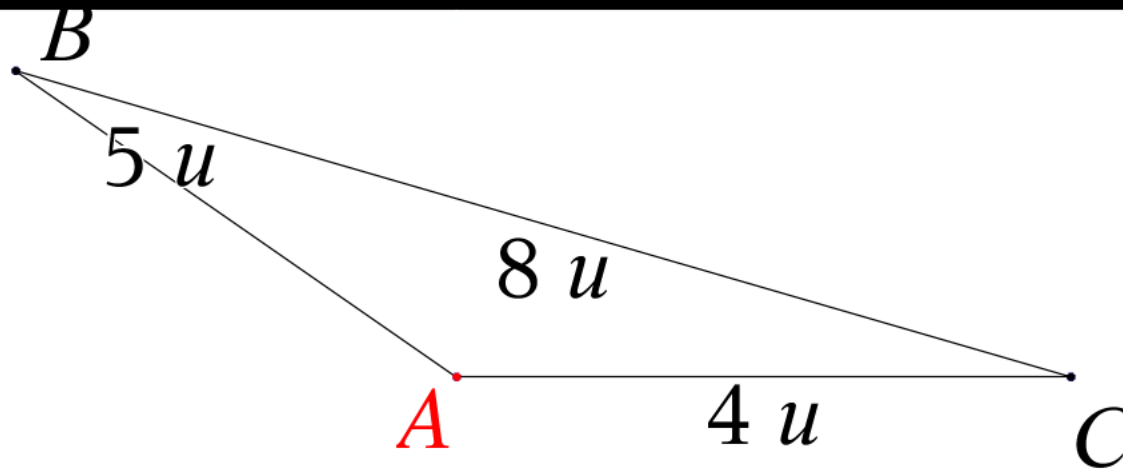


### *Triangle Inequality Test 3*

$$|8. - 4. | < 5. < 8. + 4.$$

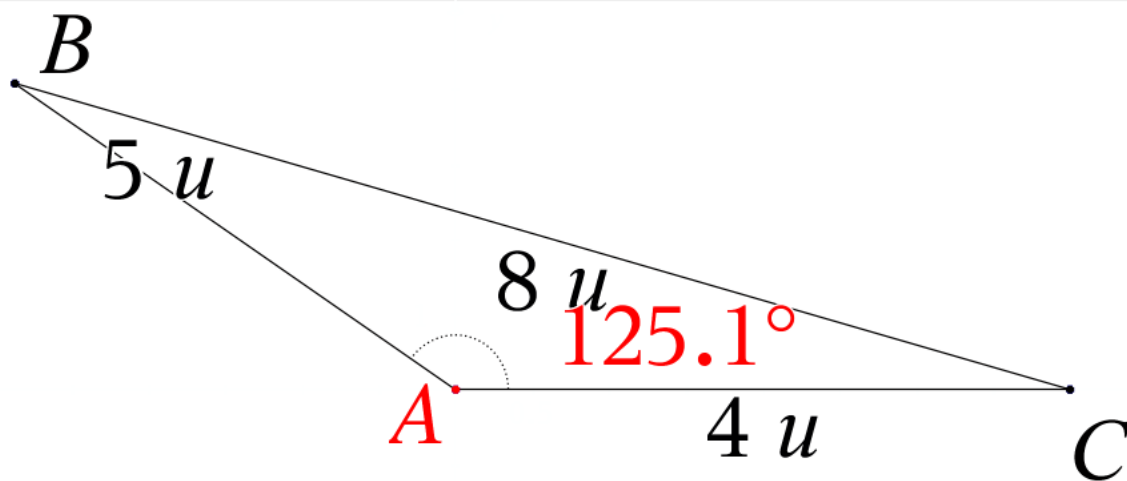
$$4. < 5. < 12.$$





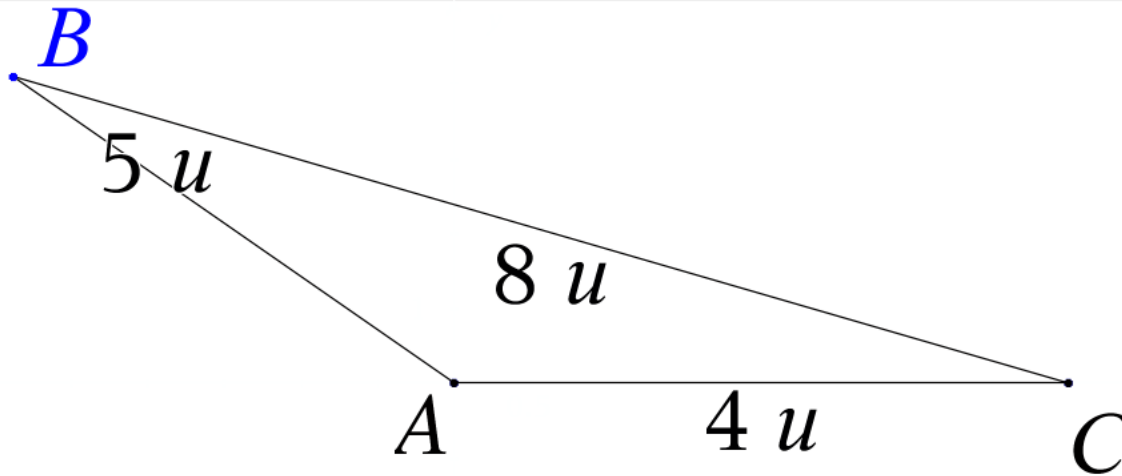
$$\cos A = \frac{b^2 + c^2 - a^2}{2 \cdot b \cdot c} = \frac{(4.)^2 + (5.)^2 - (8.)^2}{2 \cdot (4.) \cdot (5.)}$$

$$\cos A \approx -0.575$$



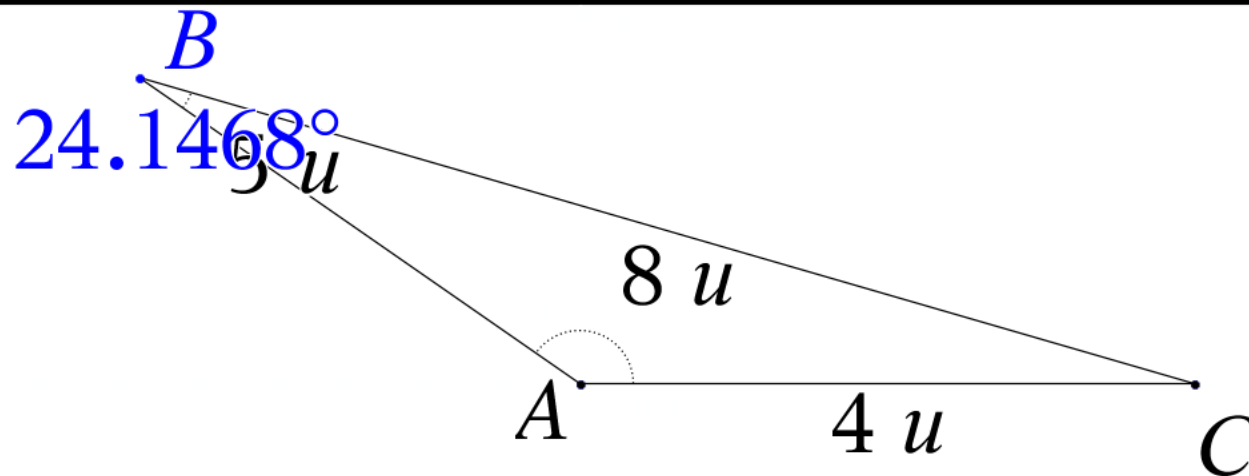
$$m\angle A = \cos^{-1} \left( \frac{(4.)^2 + (5.)^2 - (8.)^2}{2 \cdot (4.) \cdot (5.)} \right)$$

$$m\angle A \approx \cos^{-1}(-0.575) \approx 125.1^\circ$$



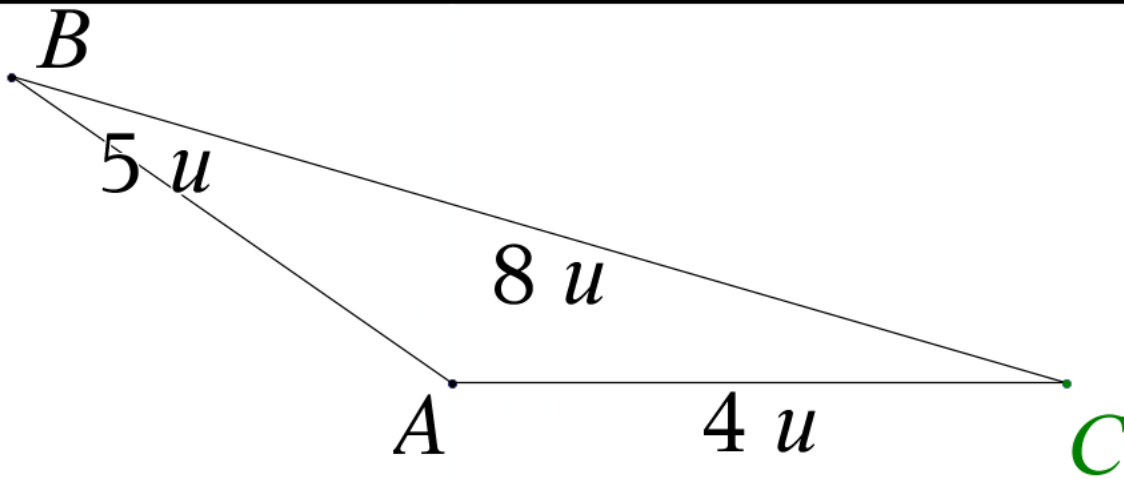
$$\cos B = \frac{a^2 + c^2 - b^2}{2 \cdot a \cdot c} = \frac{(8.)^2 + (5.)^2 - (4.)^2}{2 \cdot (8.) \cdot (5.)}$$

$$\cos B \approx 0.9125$$



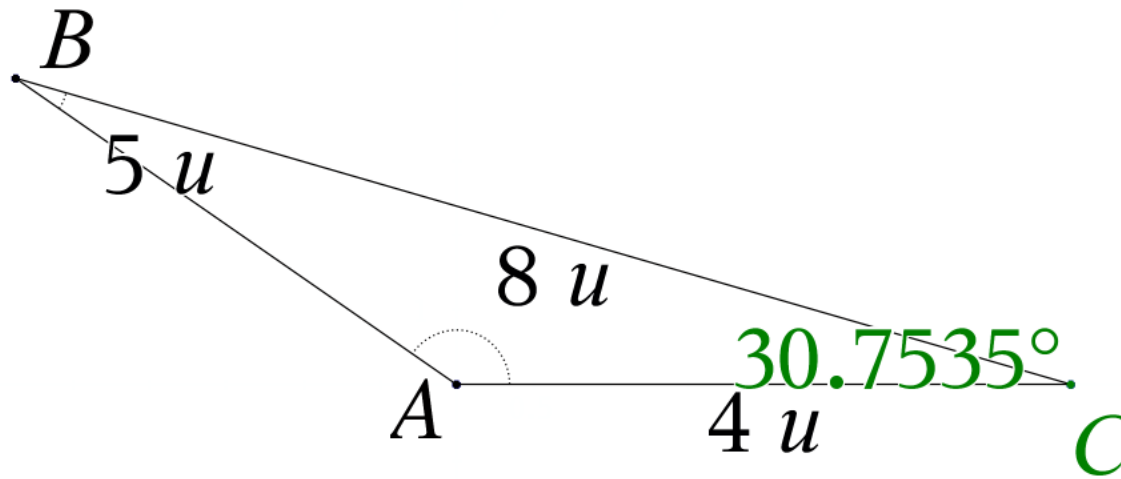
$$m\angle B = \cos^{-1} \left( \frac{(8.)^2 + (5.)^2 - (4.)^2}{2 \cdot (8.) \cdot (5.)} \right)$$

$$m\angle B \approx \cos^{-1}(0.9125) \approx 24.1468^\circ$$



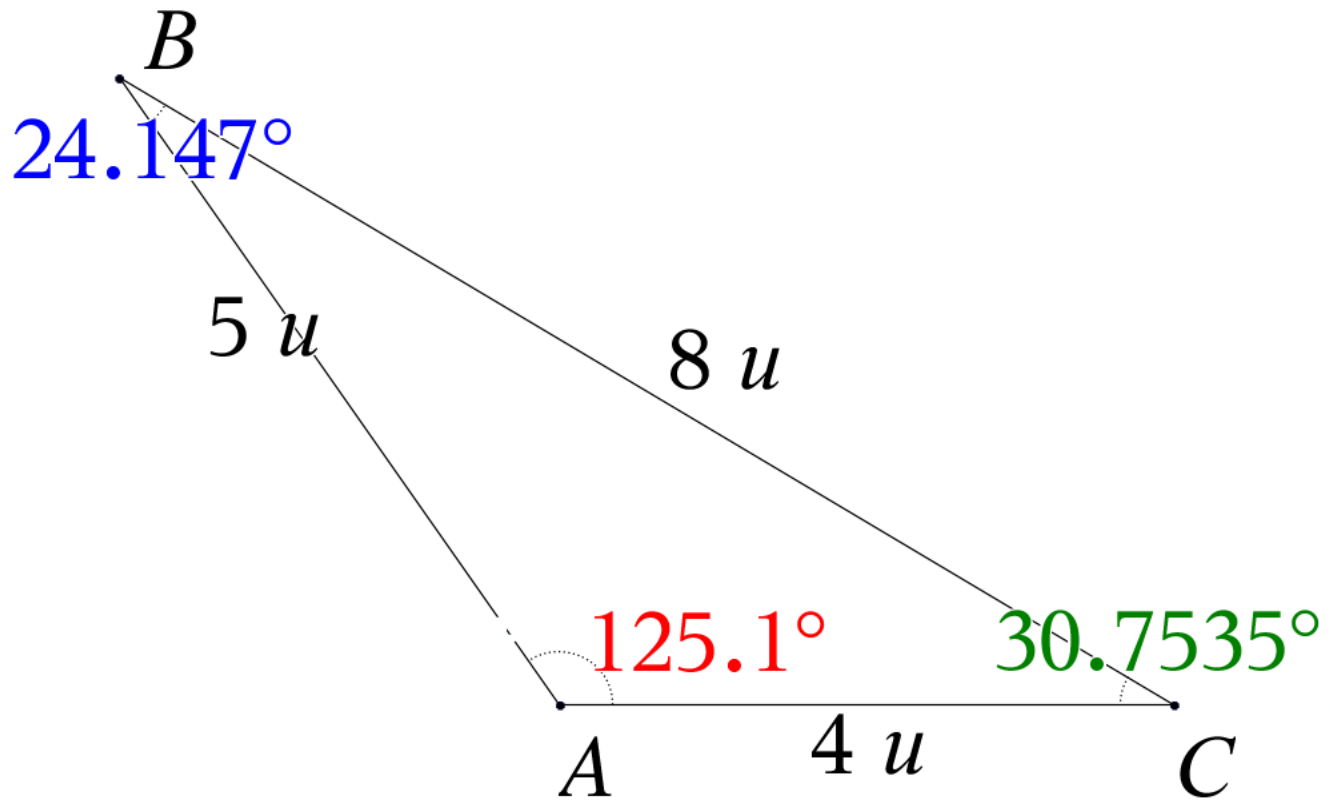
$$\cos C = \frac{a^2 + b^2 - c^2}{2 \cdot a \cdot b} = \frac{(8.)^2 + (4.)^2 - (5.)^2}{2 \cdot (8.) \cdot (4.)}$$

$$\cos C \approx 0.859375$$



$$m\angle C = \cos^{-1} \left( \frac{(8.)^2 + (4.)^2 - (5.)^2}{2 \cdot (8.) \cdot (4.)} \right)$$

$$m\angle C \approx \cos^{-1}(0.859375) \approx 30.7535^\circ$$



	A	B	C	D	E	F	G	H	I	J	K	L	M
=													
1	angle_a		a_1	8.									
2	angle_b		b_1	4.									
3	angle_c		c_1	5.									
4													
5	ratio_a	<b>-0.575</b>	angle_a	<b>125.1</b>									
6	ratio_b	<b>0.9125</b>	angle_b	<b>24.147</b>									
7	ratio_c	<b>0.85938</b>	angle_c	<b>30.754</b>									
8													
9													
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