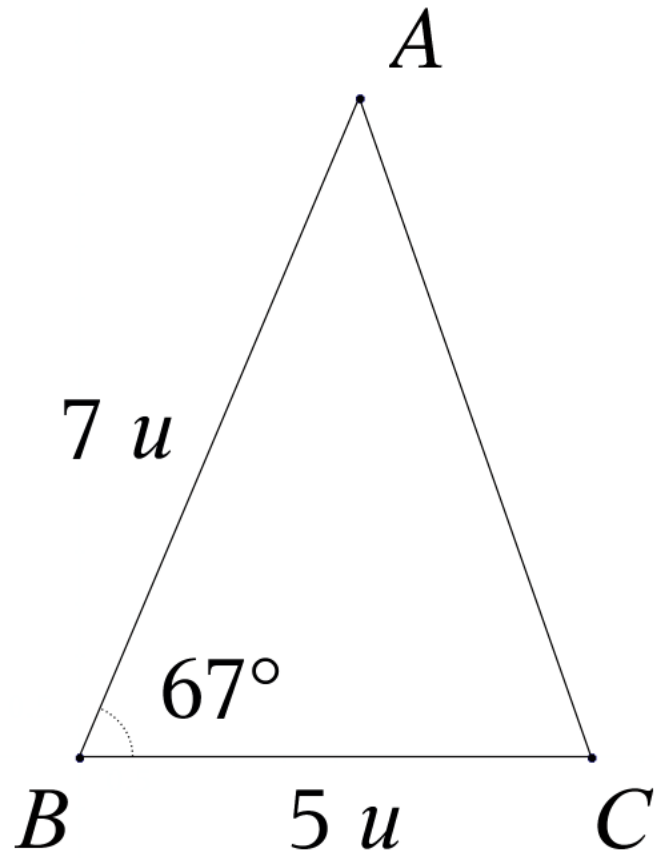
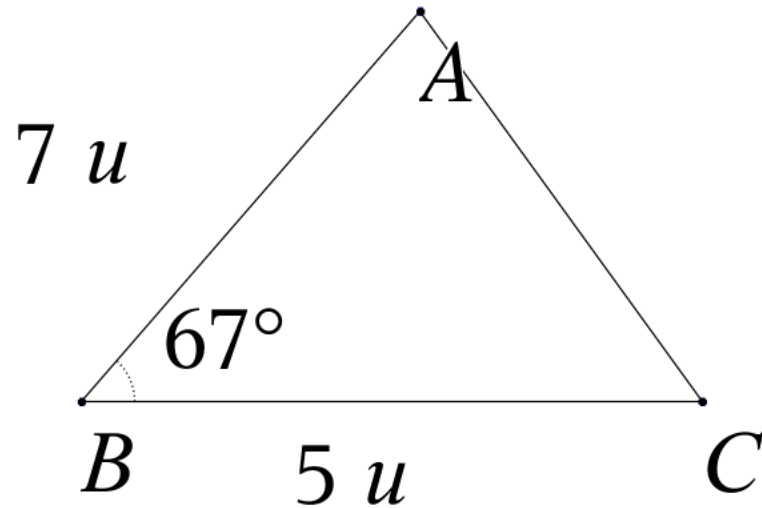
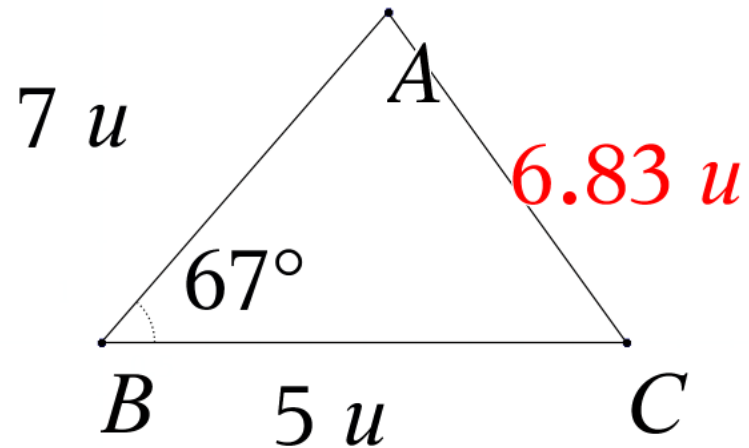


Problem 1



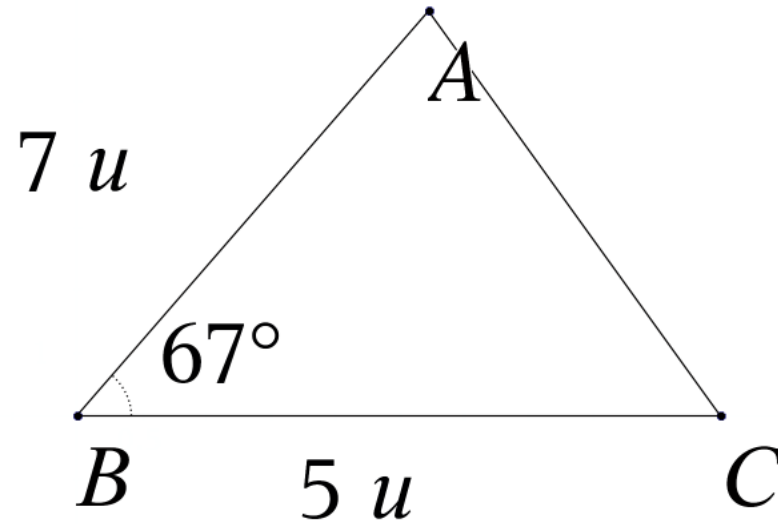


$$\begin{aligned}
 b^2 &= a^2 + c^2 - 2a \cdot c \cdot \cos B \\
 &= (5 \quad)^2 + (7 \quad)^2 - 2(5 \quad) \cdot (7 \quad) \cdot \cos(67 \quad) \\
 &= 74 \quad - 70 \quad \cos(67 \quad)
 \end{aligned}$$

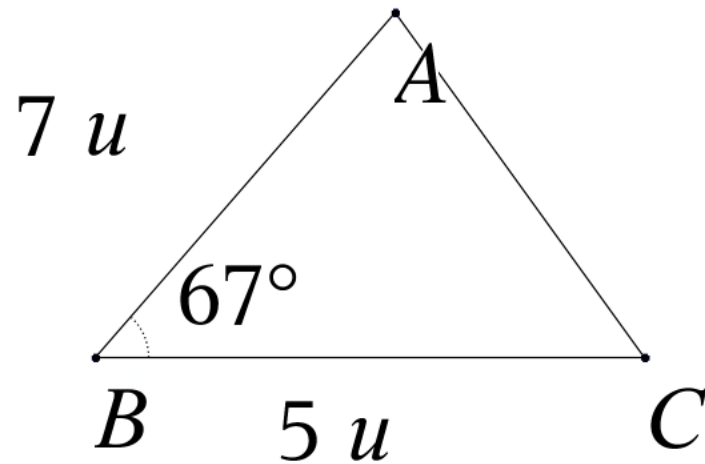


$$b = \sqrt{7^2 - 5^2 - 2 \cdot 7 \cdot 5 \cdot \cos(67^\circ)}$$

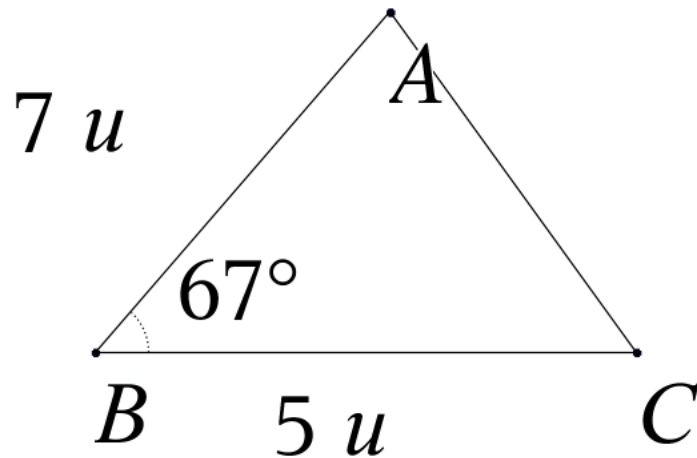
$$b \approx \sqrt{46.6488} \approx 6.83$$



$$\frac{\sin A}{5} = \frac{\sin(67)}{6.83} = \frac{\sin C}{7}$$

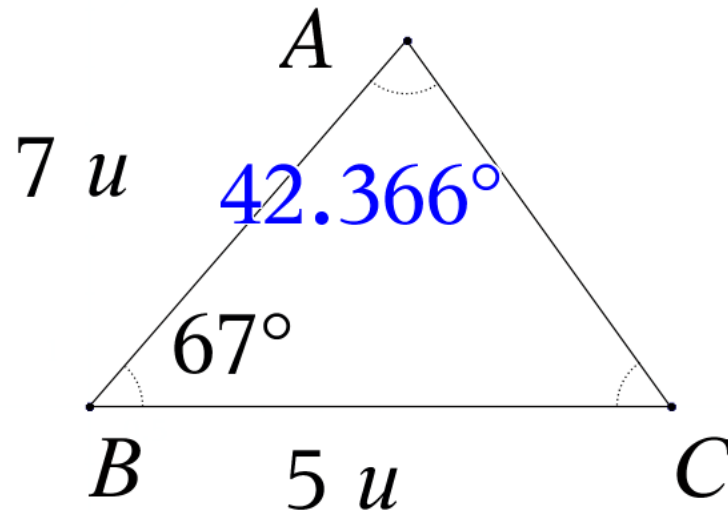


$$\frac{\sin A}{5} = \frac{\sin(67)}{6.83} \rightarrow \sin A = \frac{5 \sin(67)}{6.83}$$



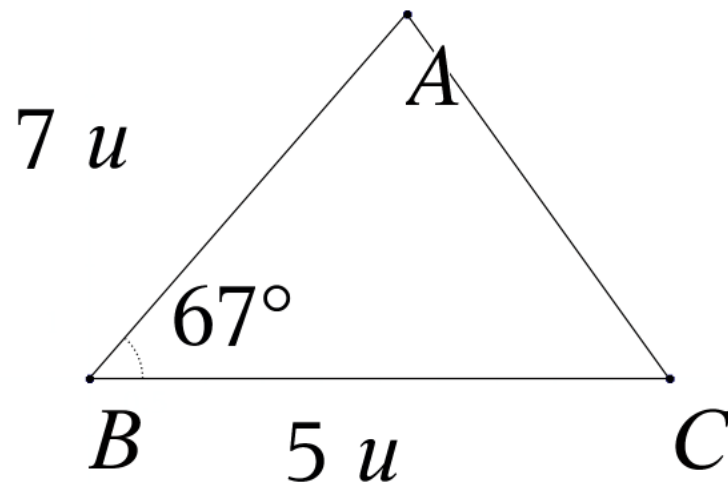
$$\frac{\sin A}{5} = \frac{\sin(67)}{6.83} \rightarrow \sin A = \frac{5 \sin(67)}{6.83}$$

$$m\angle A = \sin^{-1}\left(\frac{5 \sin(67)}{6.83}\right)$$

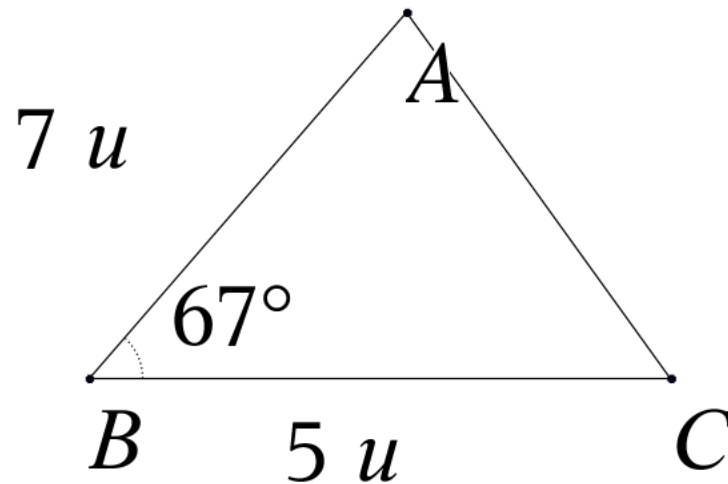


$$\frac{\sin A}{5} = \frac{\sin(67)}{6.83} \rightarrow \sin A = \frac{5 \sin(67)}{6.83}$$

$$m\angle A \approx \sin^{-1}(0.674) \approx 42.366^\circ$$

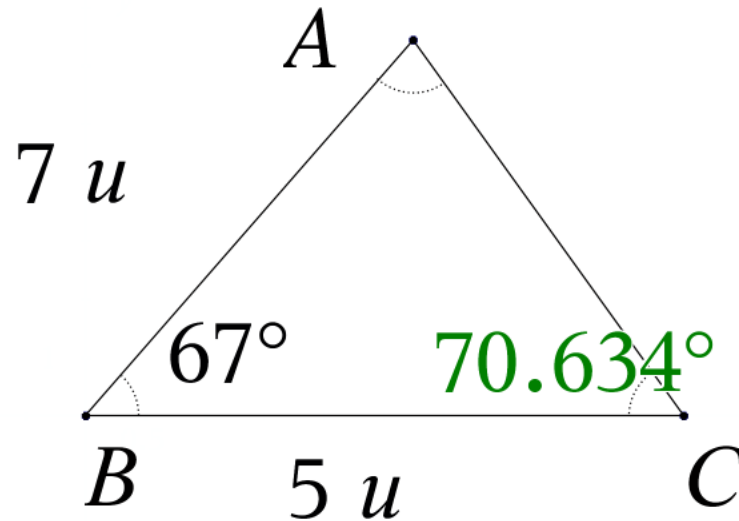


$$\frac{\sin C}{7} = \frac{\sin(67)}{6.83} \rightarrow \sin C = \frac{7 \sin(67)}{6.83}$$



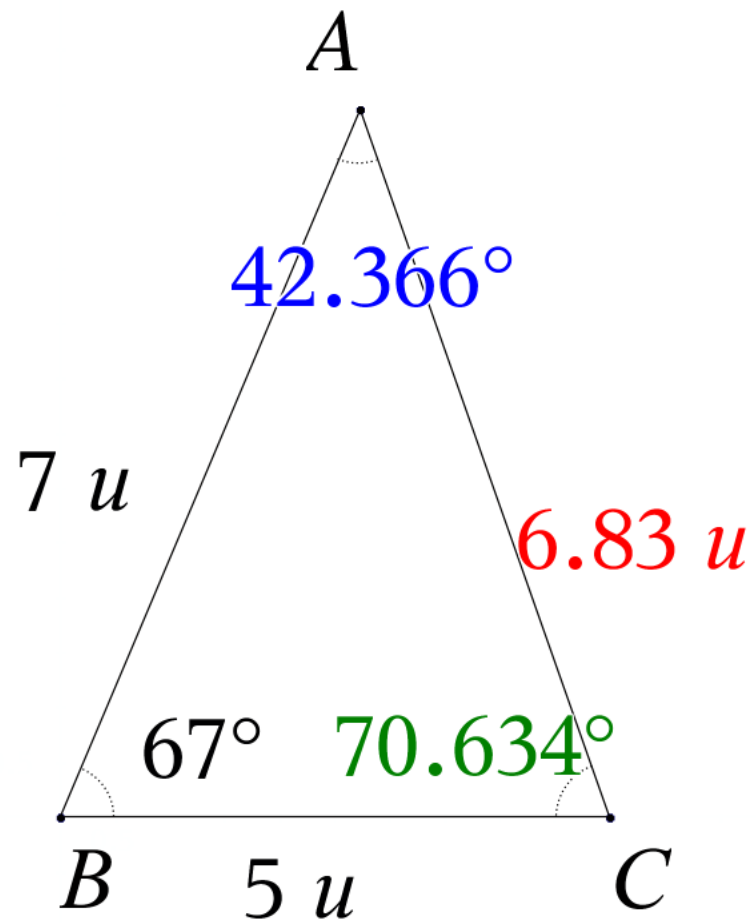
$$\frac{\sin C}{7} = \frac{\sin(67^\circ)}{6.83} \rightarrow \sin C = \frac{7 \sin(67^\circ)}{6.83}$$

$$m\angle C = \sin^{-1}\left(\frac{7 \sin(67^\circ)}{6.83}\right)$$



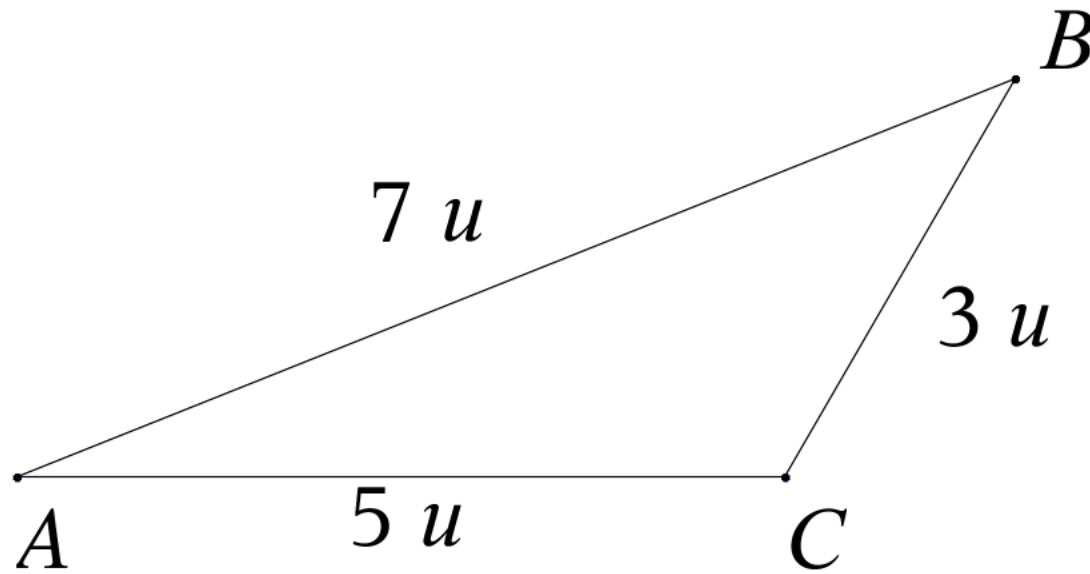
$$\frac{\sin C}{7} = \frac{\sin(67)}{6.83} \rightarrow \sin C = \frac{7 \sin(67)}{6.83}$$

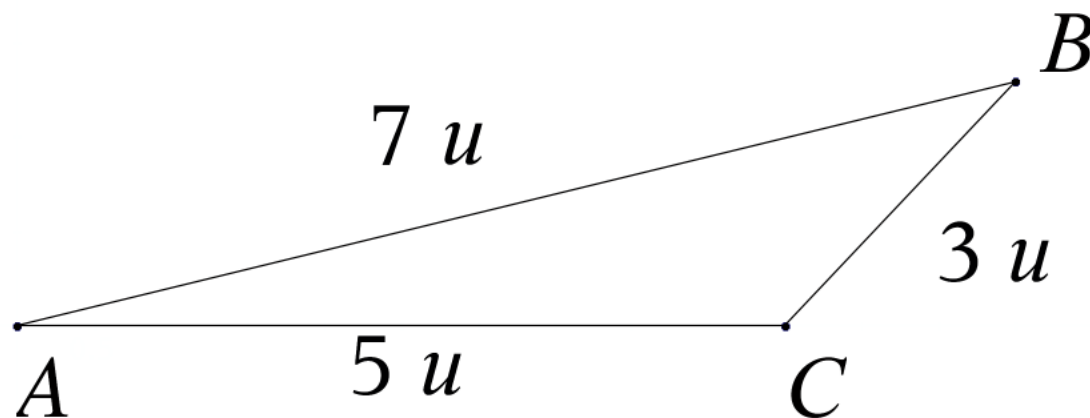
$$m\angle C \approx \sin^{-1}(0.943) \approx 70.634^\circ$$



	B	C	D	E	F	G	H	I	J	K	L	M
=												
1	_a	angle_a	a_1	5.	ratio_a	0.67387	angle_a	42.366				
2	_b	67	b_1	6.83	b_sq	46.649						
3	_c	angle_c	c_1	7.	ratio_c	0.94342	angle_c	70.634				
4												
5												
6												
7												
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11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
	B2	angle_b:=67										

Problem 2

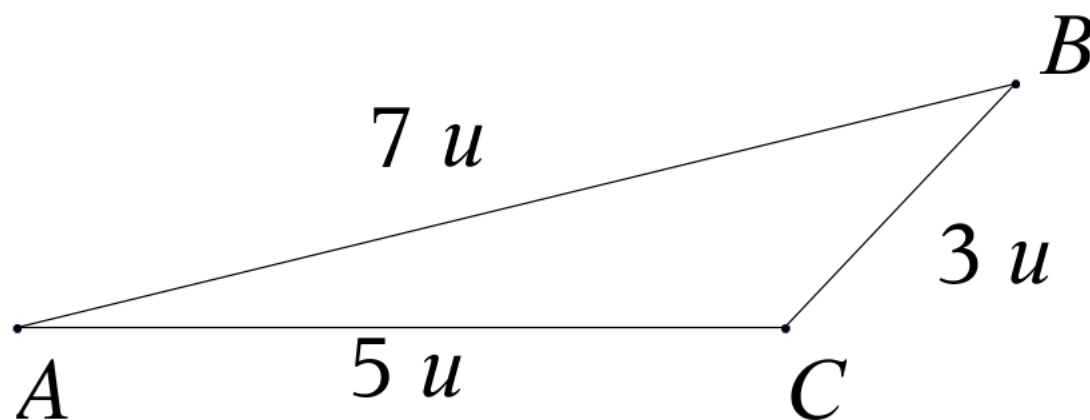




Triangle Inequality Test 1

$$|5. - 7. | < 3. < 5. + 7.$$

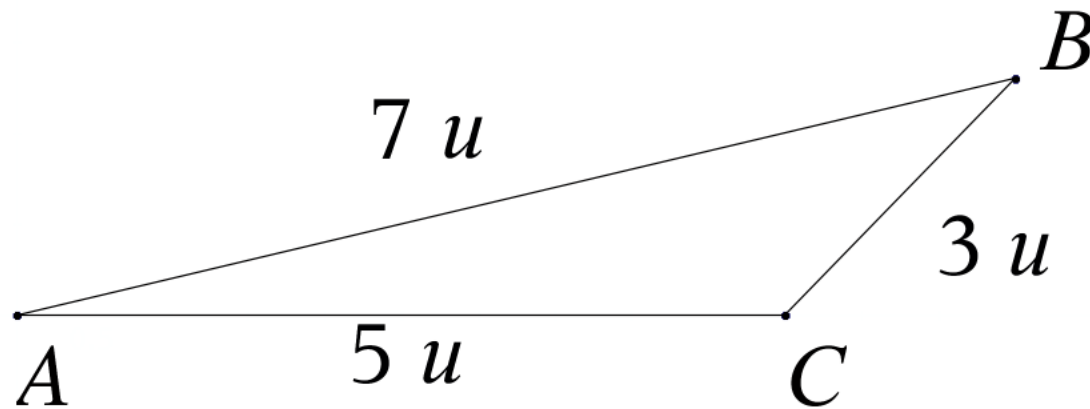
$$2. < 3. < 12.$$



Triangle Inequality Test 2

$$|3. - 7. | < 5. < 3. + 7.$$

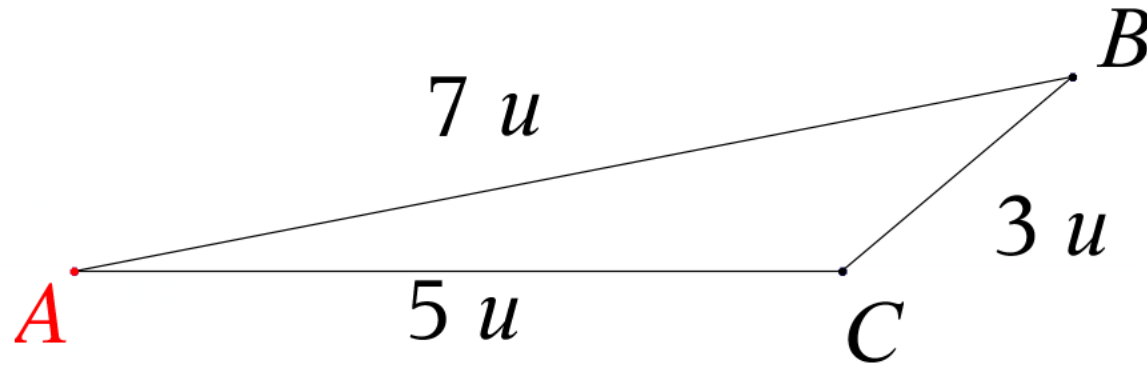
$$4. < 5. < 10.$$



Triangle Inequality Test 3

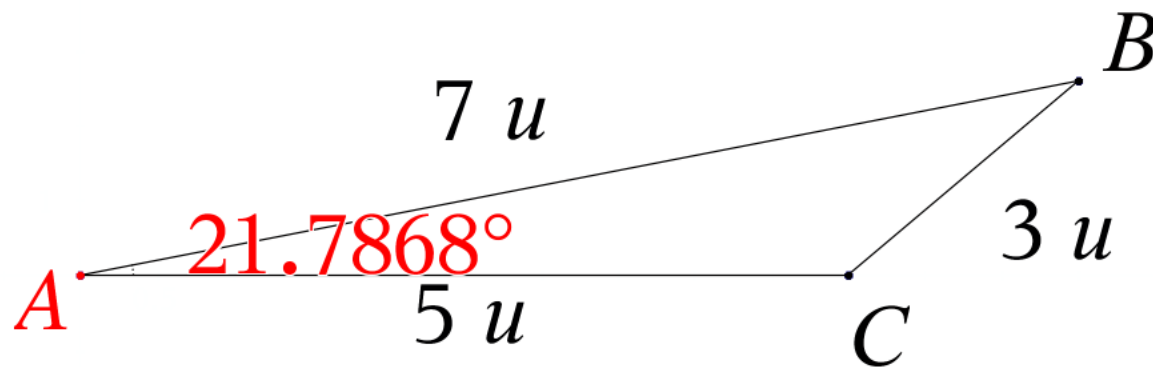
$$|3. - 5. | < 7. < 3. + 5.$$

$$2. < 7. < 8.$$



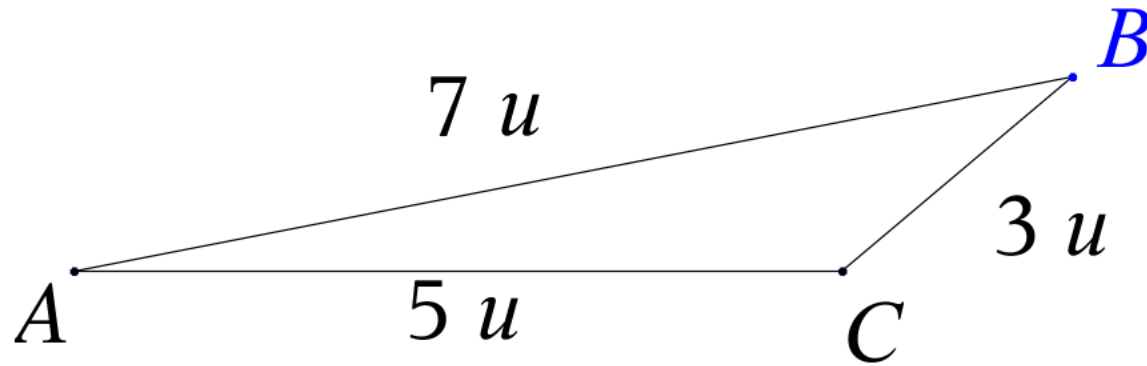
$$\cos A = \frac{b^2 + c^2 - a^2}{2 \cdot b \cdot c} = \frac{(5.)^2 + (7.)^2 - (3.)^2}{2 \cdot (5.) \cdot (7.)}$$

$$\cos A \approx 0.928571$$



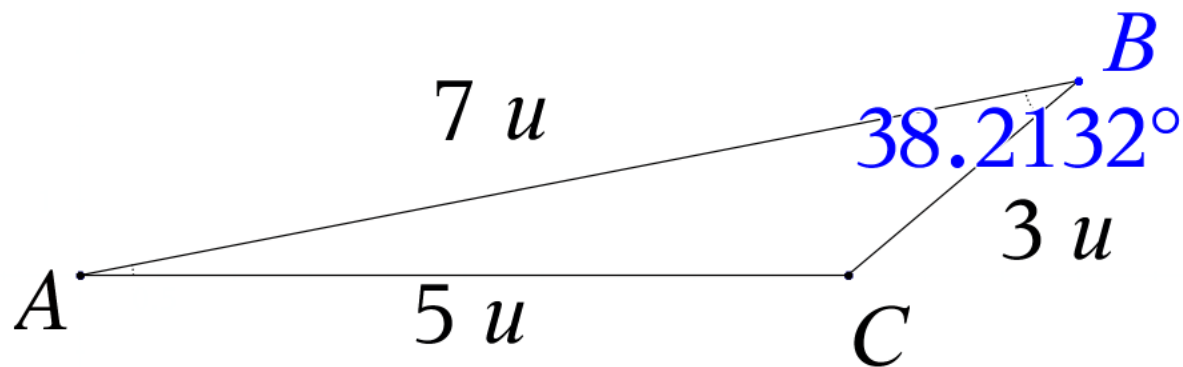
$$m\angle A = \cos^{-1} \left(\frac{(5.)^2 + (7.)^2 - (3.)^2}{2 \cdot (5.) \cdot (7.)} \right)$$

$$m\angle A \approx \cos^{-1}(0.928571) \approx 21.7868^\circ$$



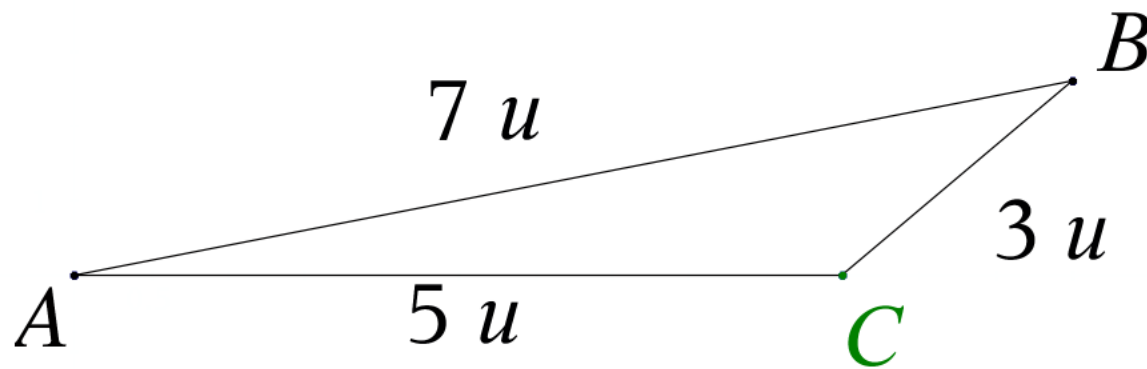
$$\cos B = \frac{a^2 + c^2 - b^2}{2 \cdot a \cdot c} = \frac{(3.)^2 + (7.)^2 - (5.)^2}{2 \cdot (3.) \cdot (7.)}$$

$$\cos B \approx 0.785714$$



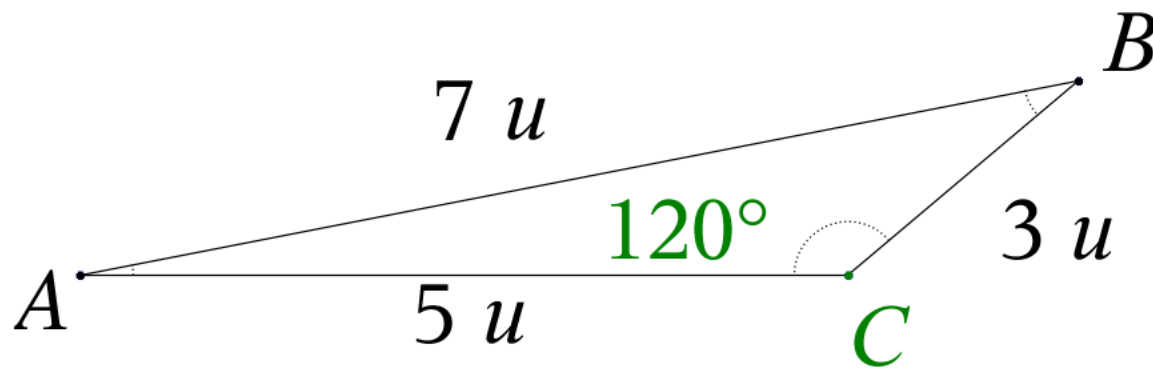
$$m\angle B = \cos^{-1} \left(\frac{(3.)^2 + (7.)^2 - (5.)^2}{2 \cdot (3.) \cdot (7.)} \right)$$

$$m\angle B \approx \cos^{-1}(0.785714) \approx 38.2132^\circ$$



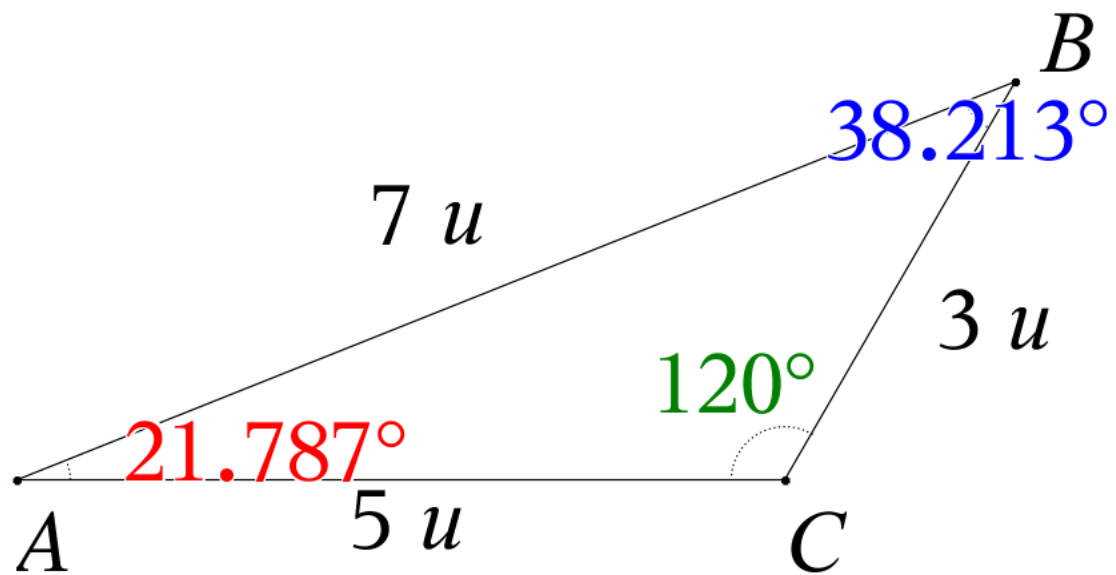
$$\cos C = \frac{a^2 + b^2 - c^2}{2 \cdot a \cdot b} = \frac{(3.)^2 + (5.)^2 - (7.)^2}{2 \cdot (3.) \cdot (5.)}$$

$$\cos C \approx -0.5$$



$$m\angle C = \cos^{-1}\left(\frac{(3.)^2 + (5.)^2 - (7.)^2}{2 \cdot (3.) \cdot (5.)}\right)$$

$$m\angle C \approx \cos^{-1}(-0.5) \approx 120.^\circ$$



	A	B	C	D	E	F	G	H	I	J	K	L
=												
1	angle_a		a_1	3.								
2	angle_b		b_1	5.								
3	angle_c		c_1	7.								
4												
5	ratio_a	0.92857	angle_a	21.787								
6	ratio_b	0.78571	angle_b	38.213								
7	ratio_c	-0.5	angle_c	120.								
8												
9												
10												
11												
12												
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