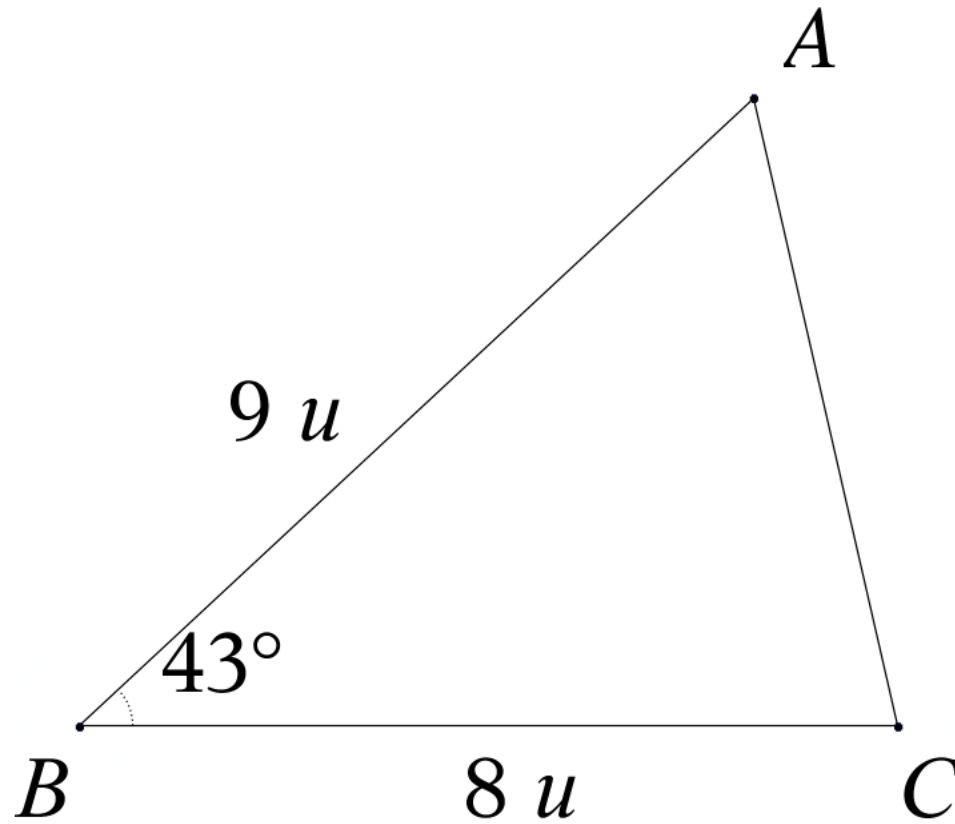
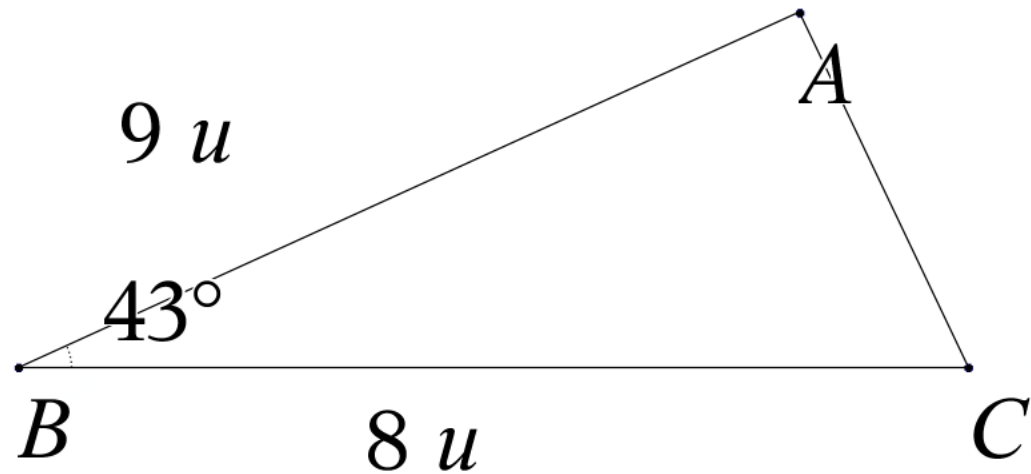
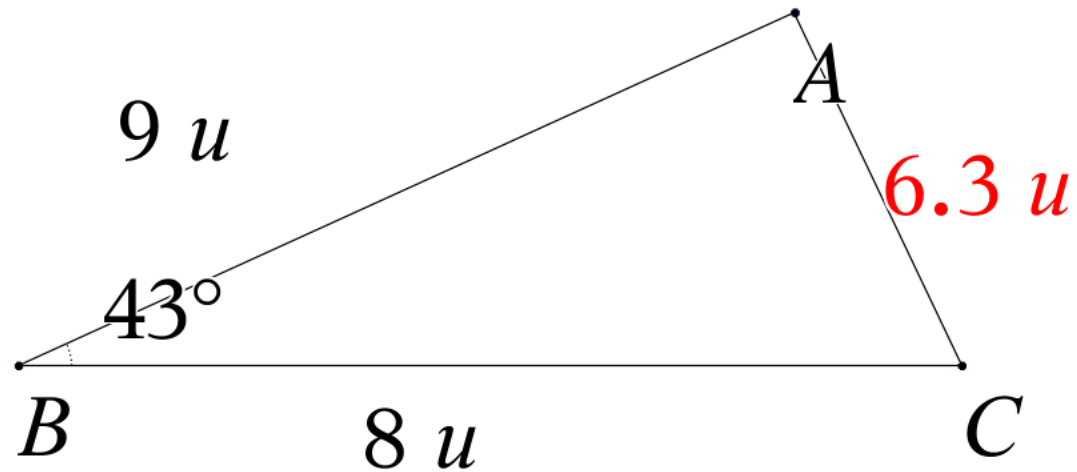


Problem 3



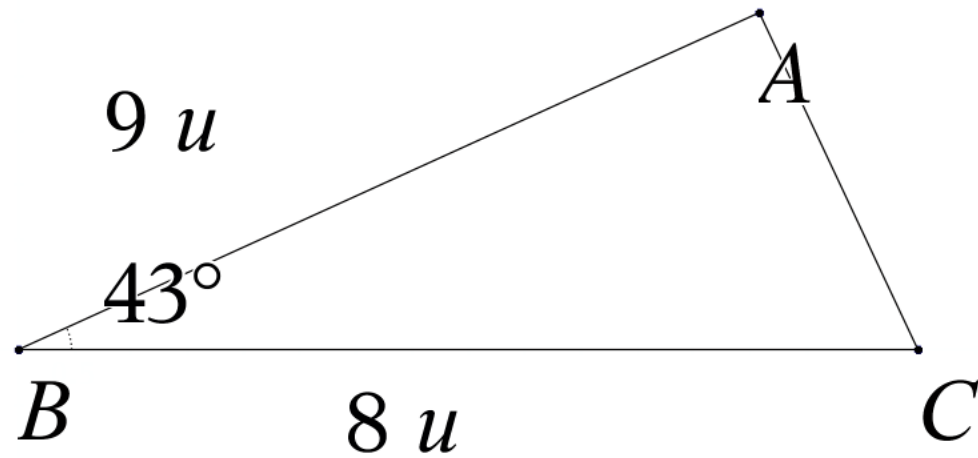


$$\begin{aligned} b^2 &= a^2 + c^2 - 2a \cdot c \cdot \cos B \\ &= (8.)^2 + (9.)^2 - 2(8.) \cdot (9.) \cdot \cos(43) \\ &= 145. - 144. \cos(43) \end{aligned}$$

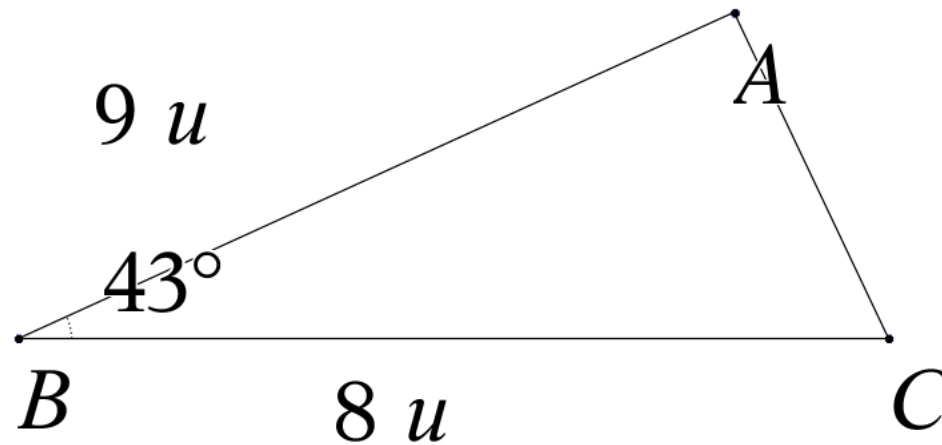


$$b = \sqrt{145. - 144. \cos(43)}$$

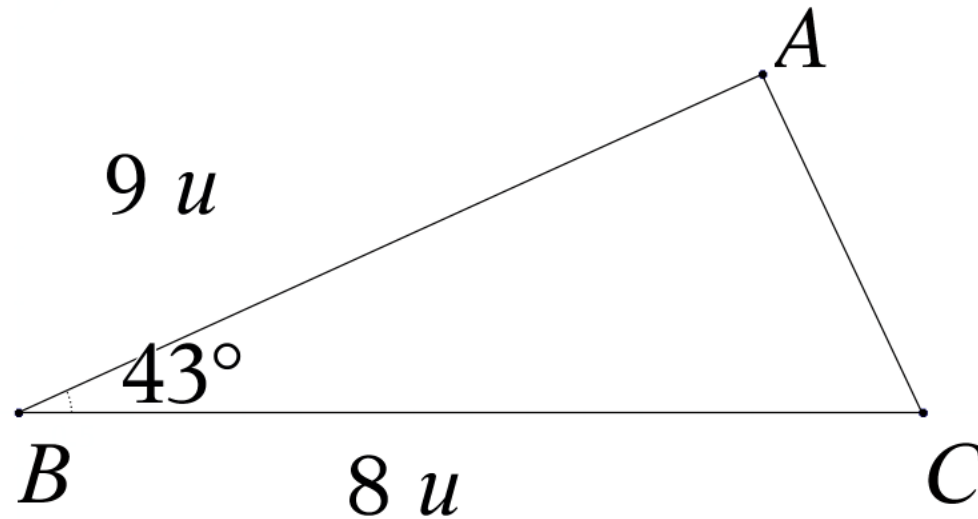
$$b \approx \sqrt{39.6851} \approx 6.3$$



$$\frac{\sin A}{8.} = \frac{\sin(43)}{6.3} = \frac{\sin C}{9.}$$

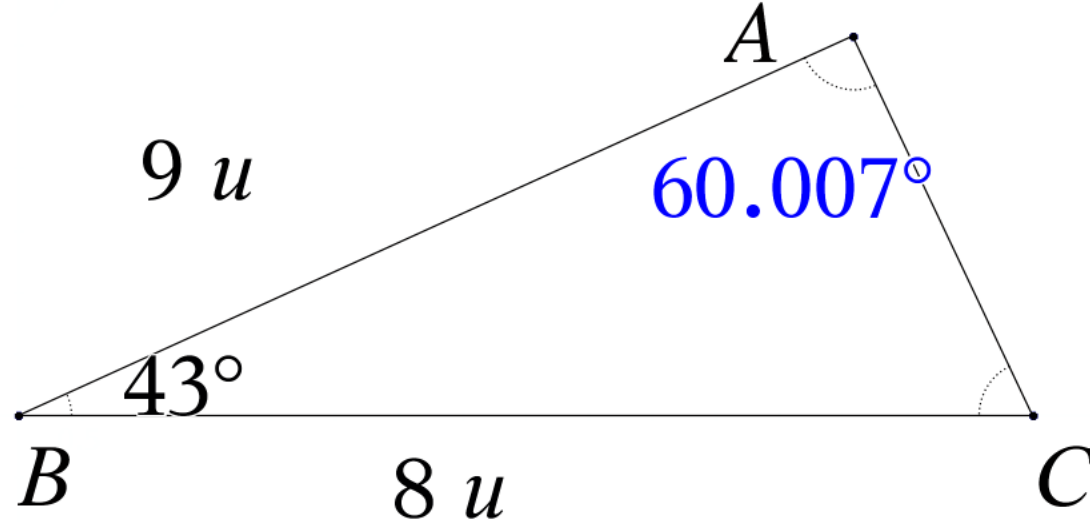


$$\frac{\sin A}{8.} = \frac{\sin(43)}{6.3} \rightarrow \sin A = \frac{8. \sin(43)}{6.2996}$$



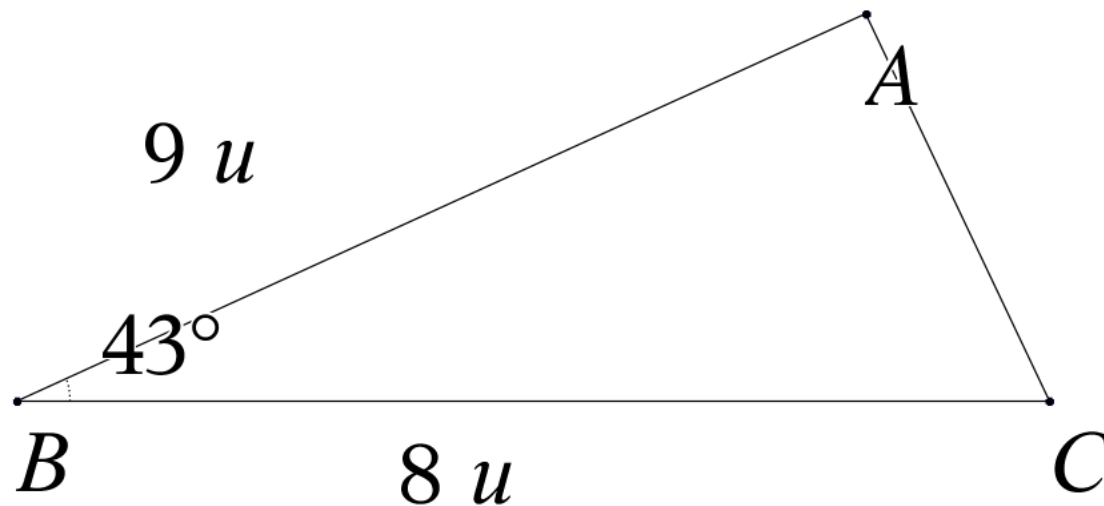
$$\frac{\sin A}{8.} = \frac{\sin(43)}{6.3} \rightarrow \sin A = \frac{8. \sin(43)}{6.3}$$

$$m\angle A = \sin^{-1}\left(\frac{8. \sin(43)}{6.3}\right)$$

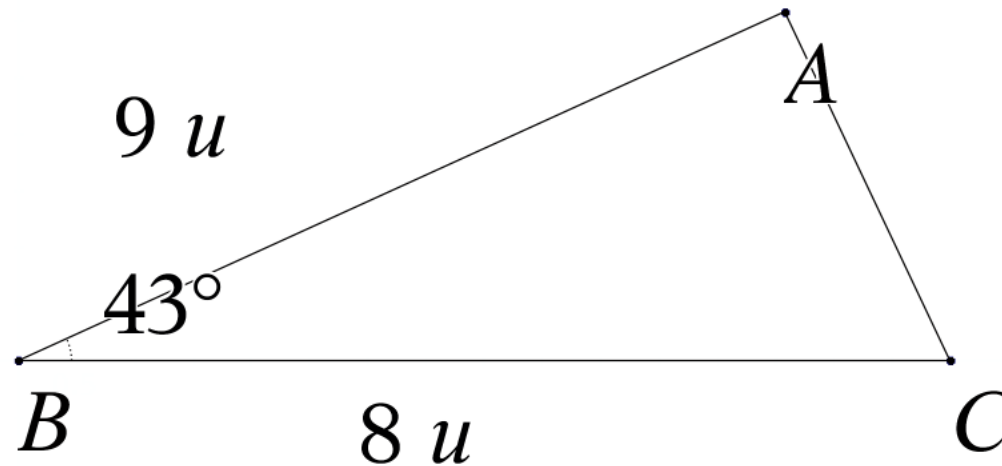


$$\frac{\sin A}{8.} = \frac{\sin(43)}{6.3} \rightarrow \sin A = \frac{8. \sin(43)}{6.2996}$$

$$m\angle A \approx \sin^{-1}(0.866) \approx 60.007^\circ$$

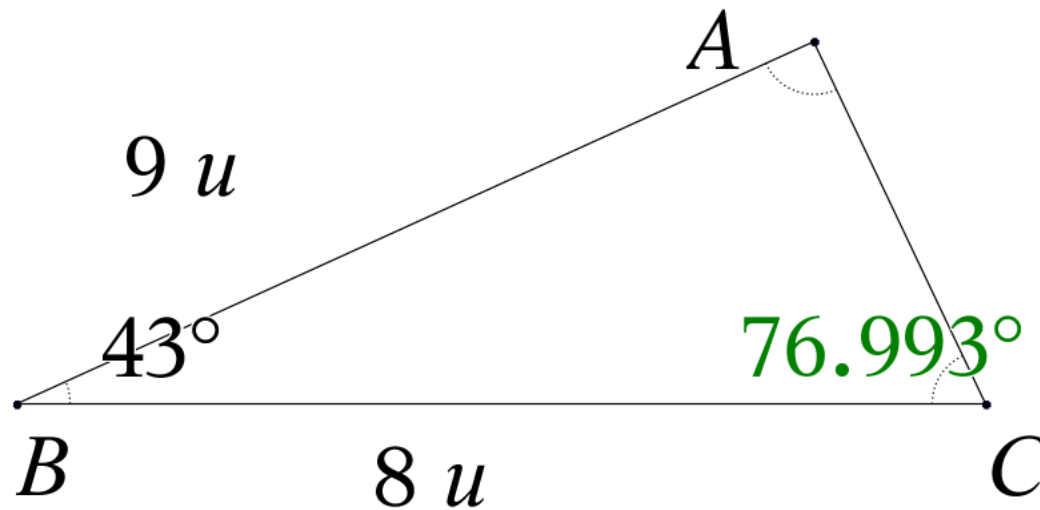


$$\frac{\sin C}{9.} = \frac{\sin(43)}{6.3} \rightarrow \sin C = \frac{9. \sin(43)}{6.2996}$$



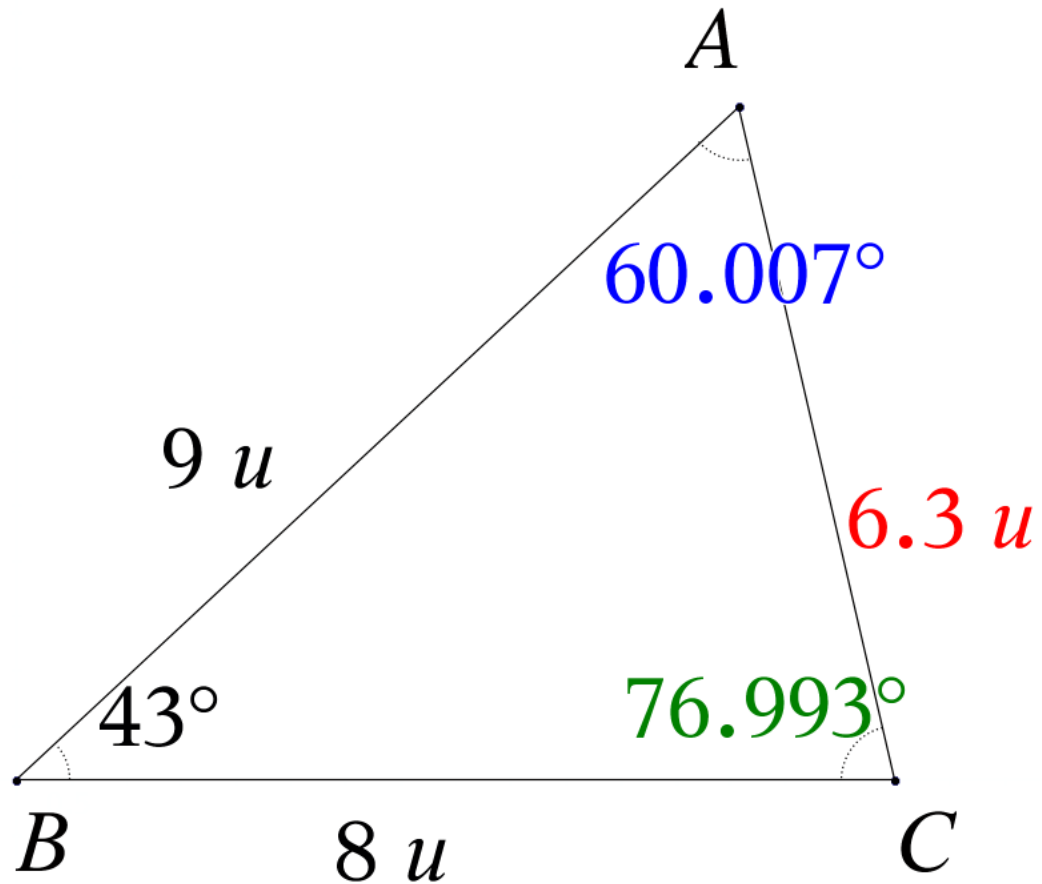
$$\frac{\sin C}{9.} = \frac{\sin(43)}{6.3} \rightarrow \sin C = \frac{9. \sin(43)}{6.2996}$$

$$m\angle C = \sin^{-1}\left(\frac{9. \sin(43)}{6.3}\right)$$



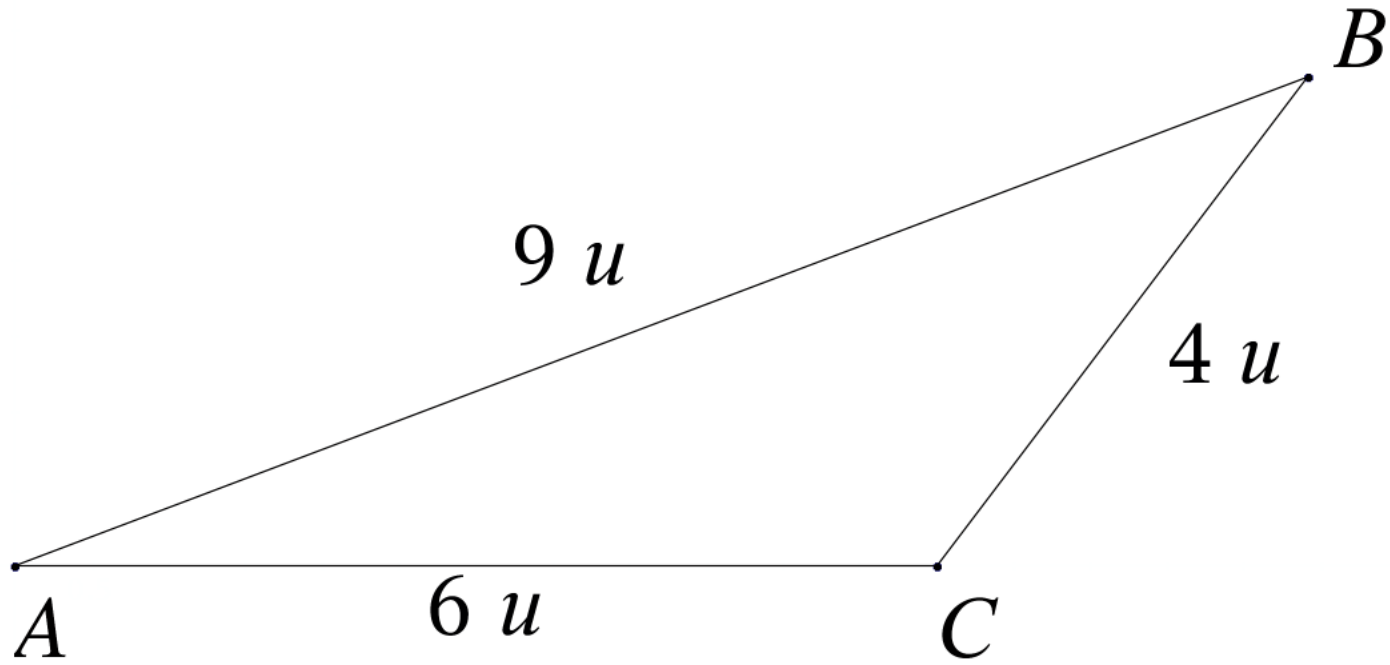
$$\frac{\sin C}{9.} = \frac{\sin(43)}{6.3} \rightarrow \sin C = \frac{9. \sin(43)}{6.2996}$$

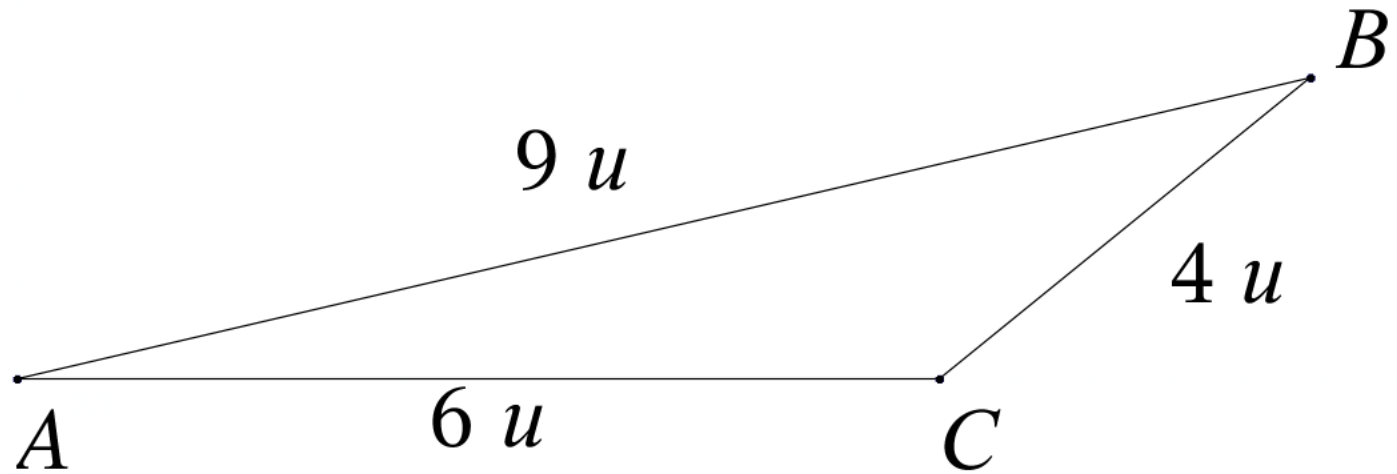
$$m\angle C \approx \sin^{-1}(0.974) \approx 76.993^\circ$$



	A	B	C	D	E	F	G	H	I	J	K	L
=												
1	angle_a	angle_a	a_1	8.	ratio_a	0.86608	angle_a	60.007				
2	angle_b	43	b_1	6.2996	b_sq	39.685						
3	angle_c	angle_c	c_1	9.	ratio_c	0.97434	angle_c	76.993				
4												
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18												
19												
20												
B3	angle_c											

Problem 4

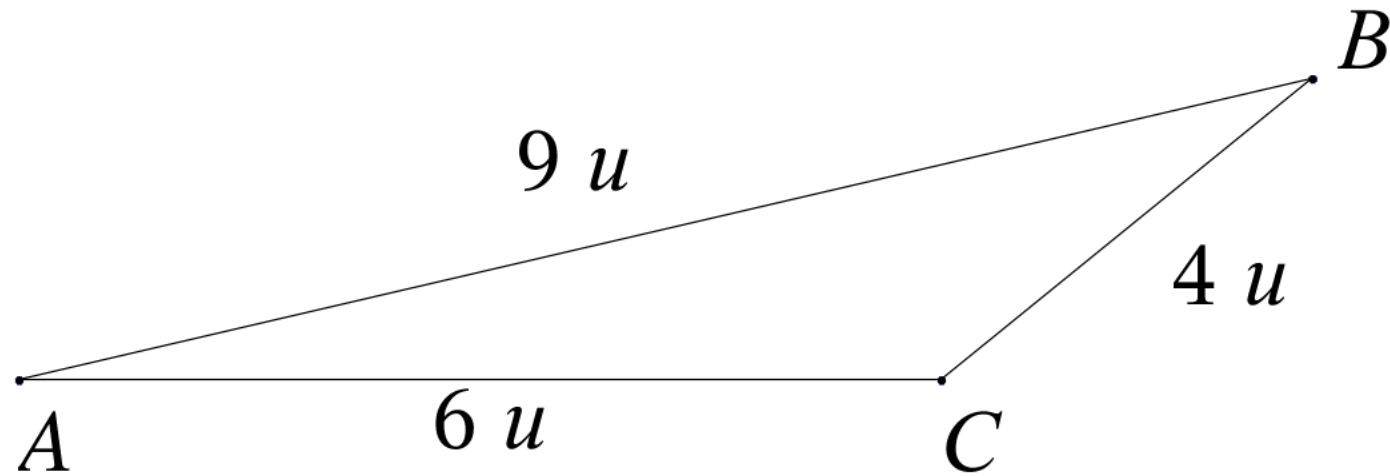




Triangle Inequality Test 1

$$|6. - 9. | < 4. < 6. + 9.$$

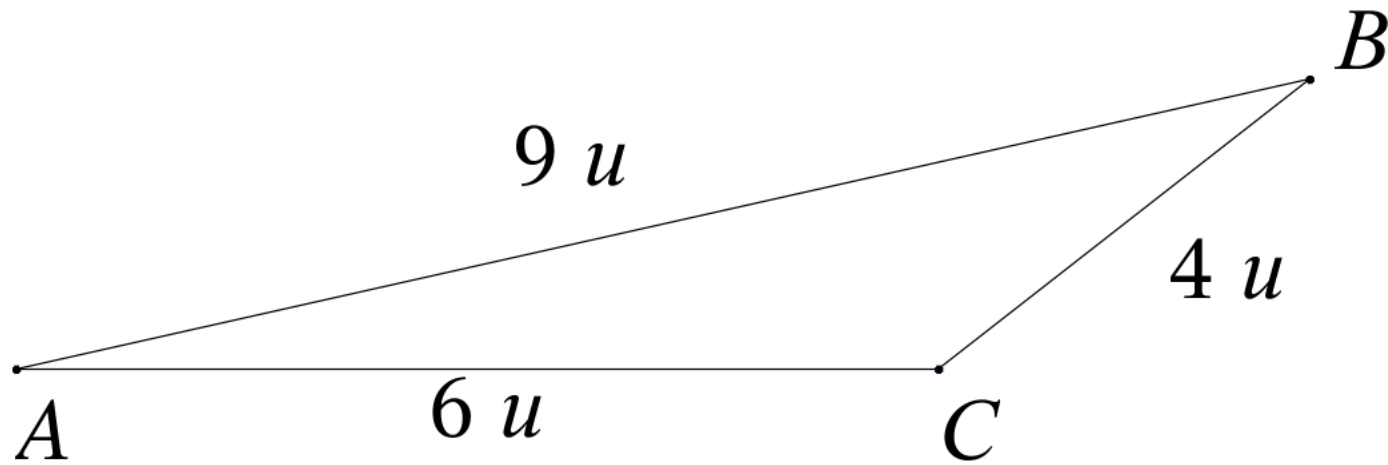
$$3. < 4. < 15.$$



Triangle Inequality Test 2

$$|4. - 9. | < 6. < 4. + 9.$$

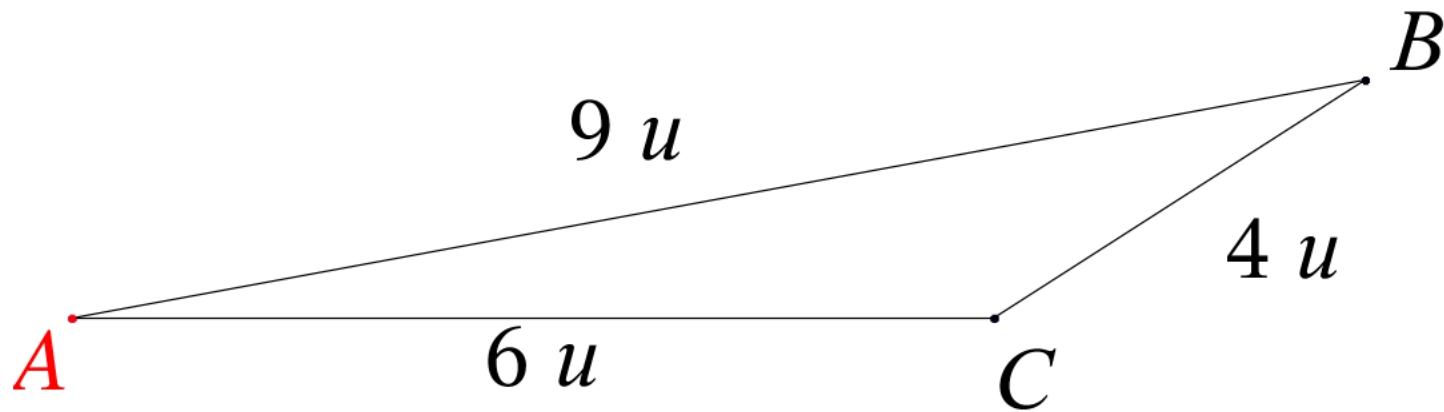
$$5. < 6. < 13.$$



Triangle Inequality Test 3

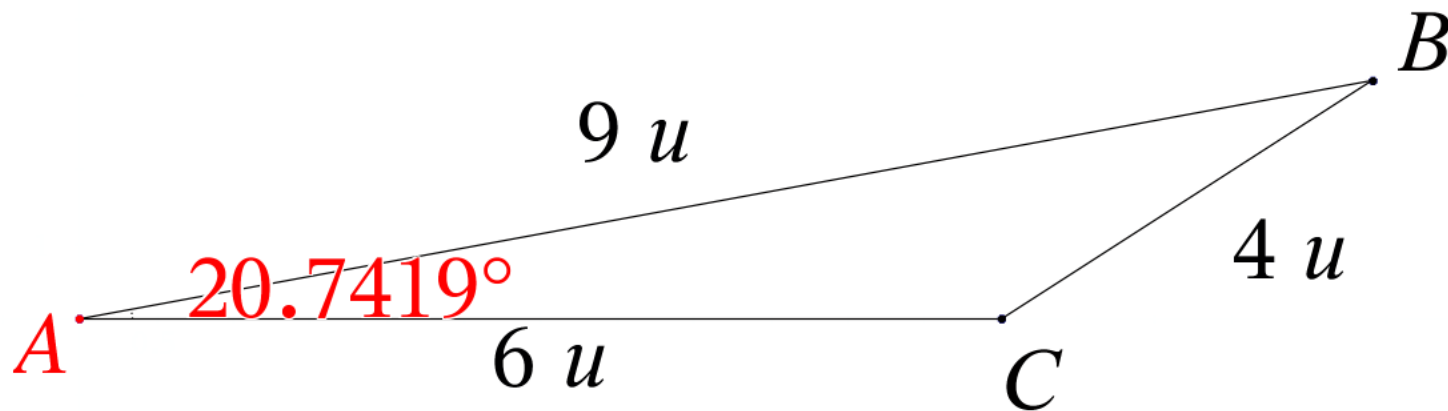
$$|4. - 6. | < 9. < 4. + 6.$$

$$2. < 9. < 10.$$



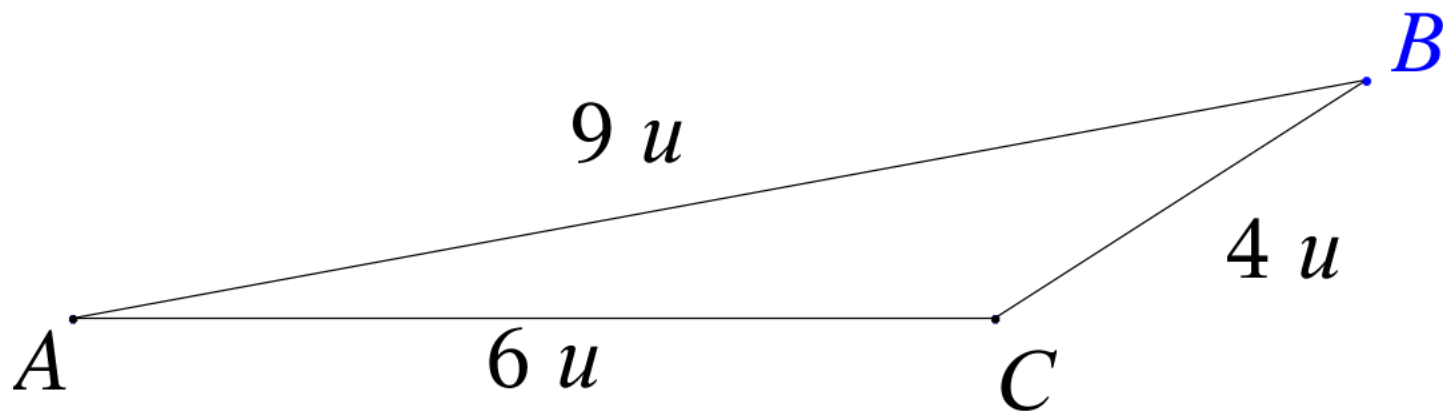
$$\cos A = \frac{b^2 + c^2 - a^2}{2 \cdot b \cdot c} = \frac{(6.)^2 + (9.)^2 - (4.)^2}{2 \cdot (6.) \cdot (9.)}$$

$$\cos A \approx 0.935185$$



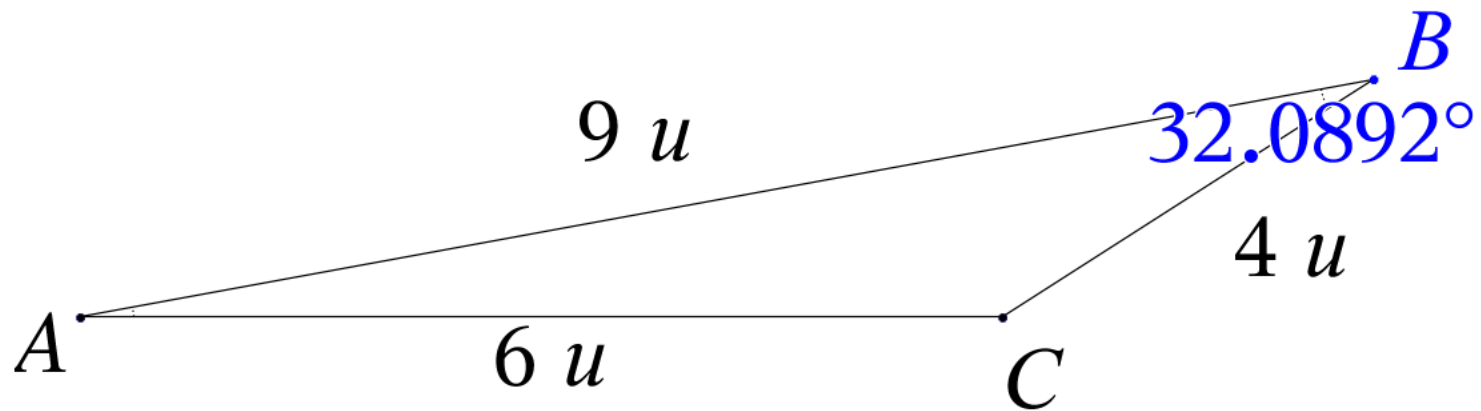
$$m\angle A = \cos^{-1} \left(\frac{(6.)^2 + (9.)^2 - (4.)^2}{2 \cdot (6.) \cdot (9.)} \right)$$

$$m\angle A \approx \cos^{-1}(0.935185) \approx 20.7419^\circ$$



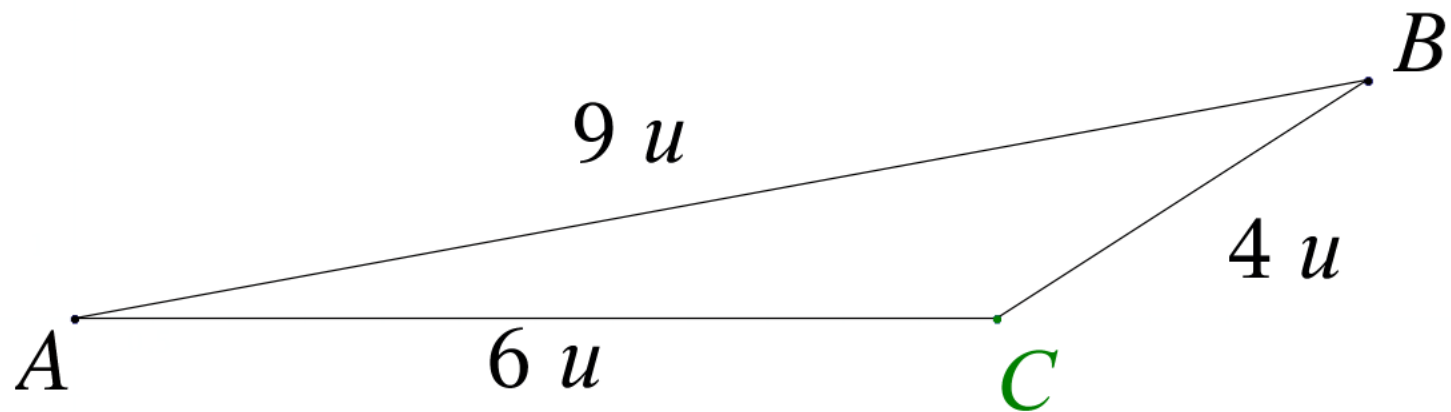
$$\cos B = \frac{a^2 + c^2 - b^2}{2 \cdot a \cdot c} = \frac{(4.)^2 + (9.)^2 - (6.)^2}{2 \cdot (4.) \cdot (9.)}$$

$$\cos B \approx 0.847222$$



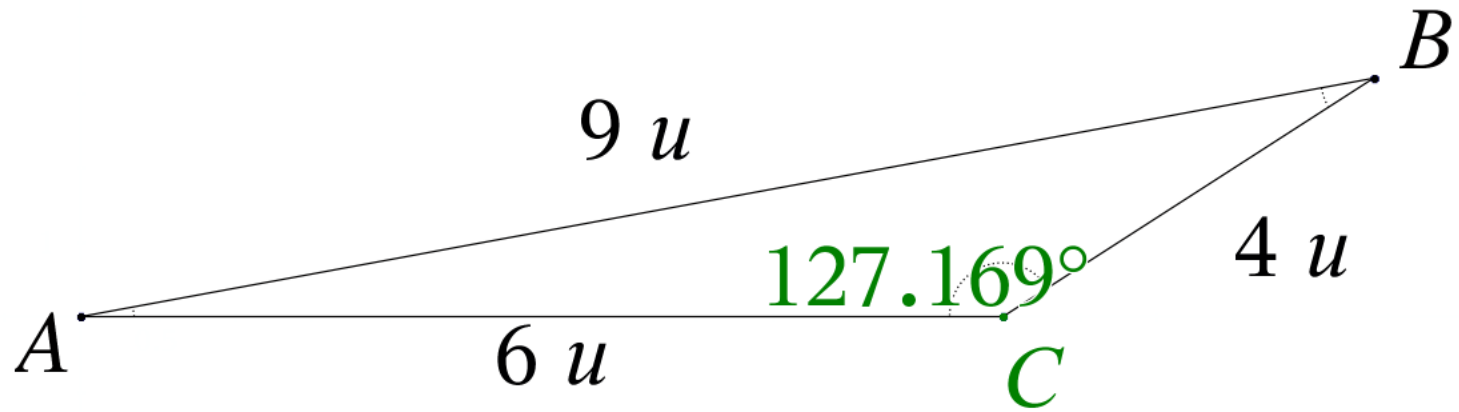
$$m\angle B = \cos^{-1} \left(\frac{(4.)^2 + (9.)^2 - (6.)^2}{2 \cdot (4.) \cdot (9.)} \right)$$

$$m\angle B \approx \cos^{-1}(0.847222) \approx 32.0892^\circ$$



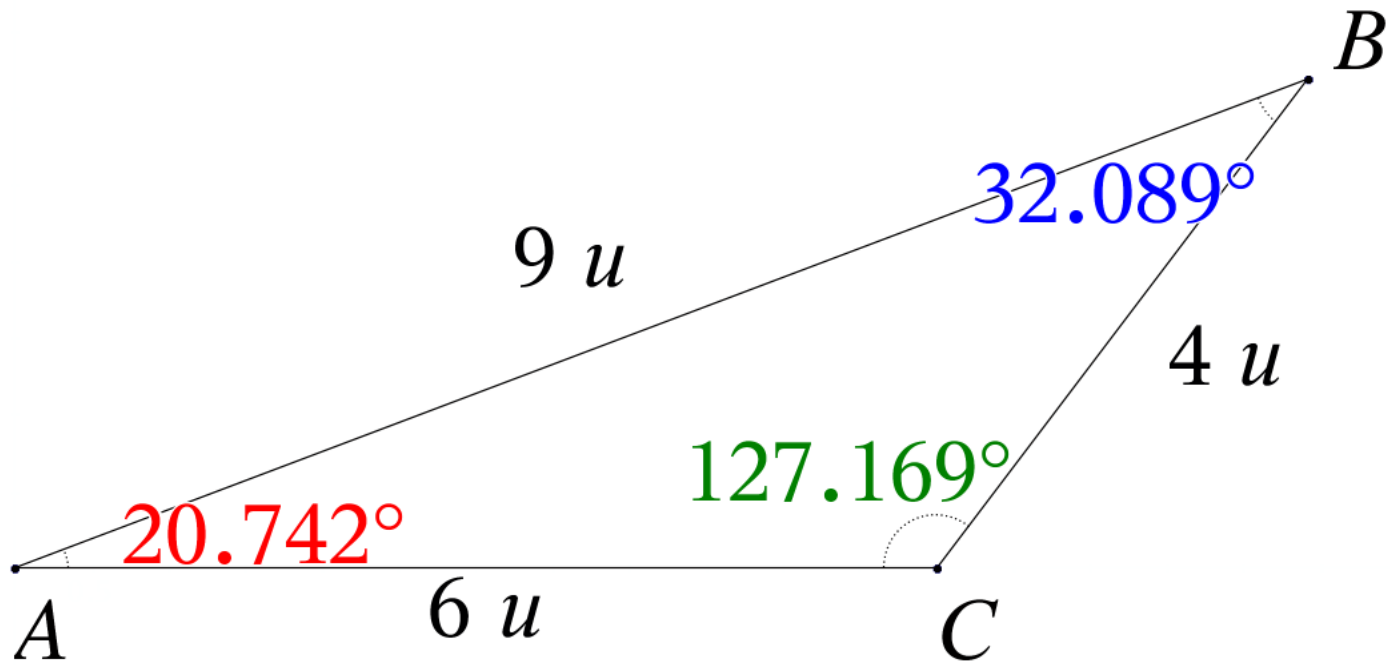
$$\cos C = \frac{a^2 + b^2 - c^2}{2 \cdot a \cdot b} = \frac{(4.)^2 + (6.)^2 - (9.)^2}{2 \cdot (4.) \cdot (6.)}$$

$$\cos C \approx -0.604167$$



$$m\angle C = \cos^{-1}\left(\frac{(4.)^2 + (6.)^2 - (9.)^2}{2 \cdot (4.) \cdot (6.)}\right)$$

$$m\angle C \approx \cos^{-1}(-0.604167) \approx 127.169^\circ$$



	A	B	C	D	E	F	G	H	I	J	K	L
	=											
1	angle_a		a_1	4.								
2	angle_b		b_1	6.								
3	angle_c		c_1	9.								
4												
5	ratio_a	0.93519	angle_a	20.742								
6	ratio_b	0.84722	angle_b	32.089								
7	ratio_c	-0.60417	angle_c	127.17								
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