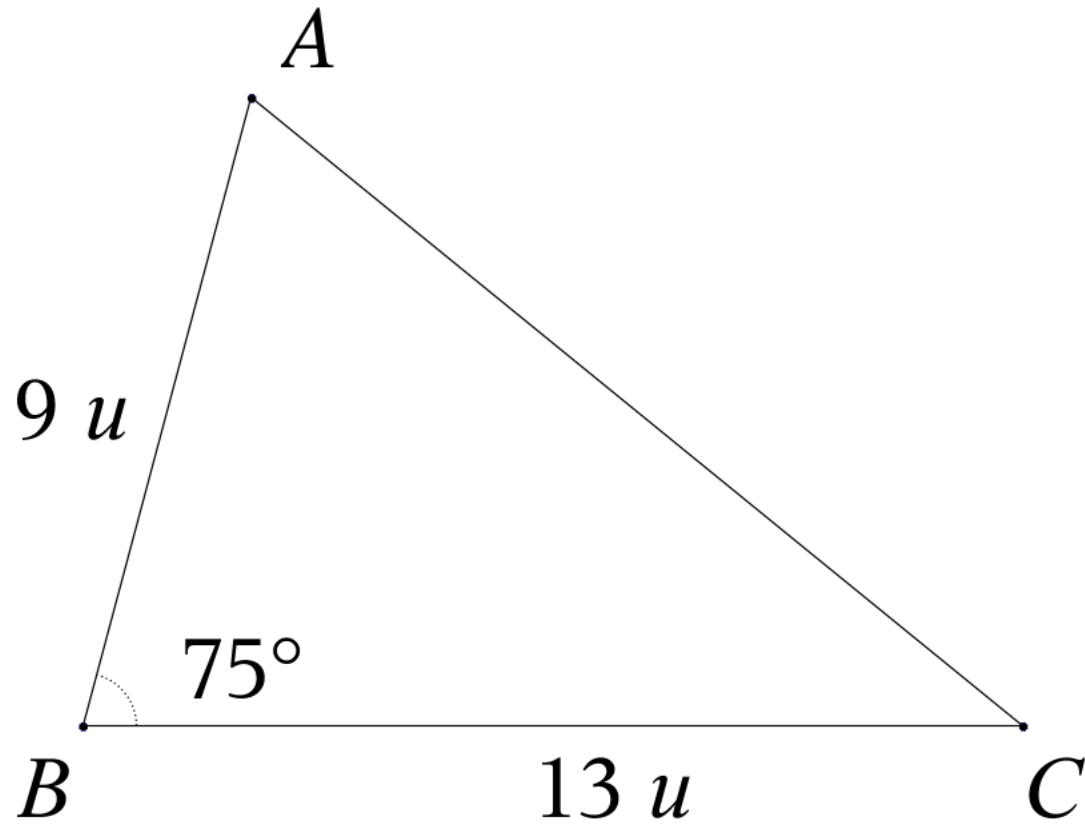
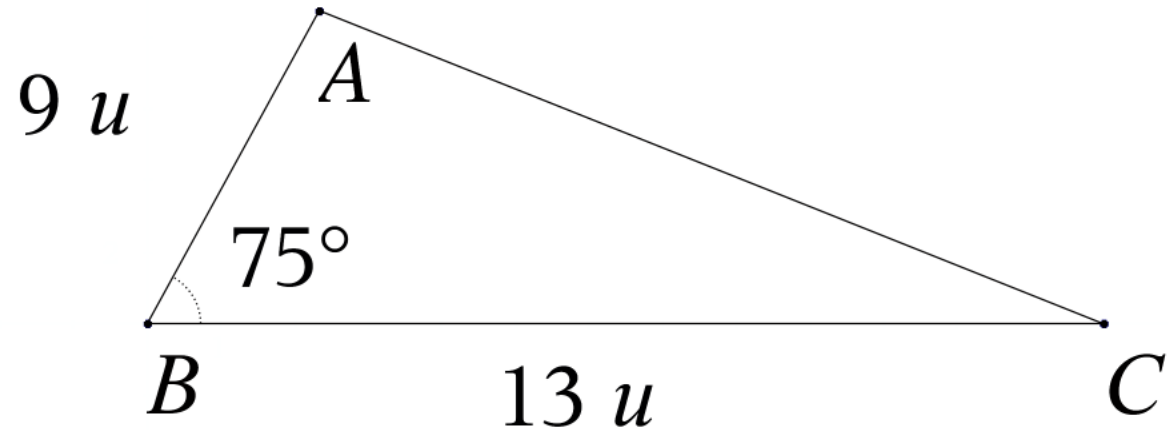
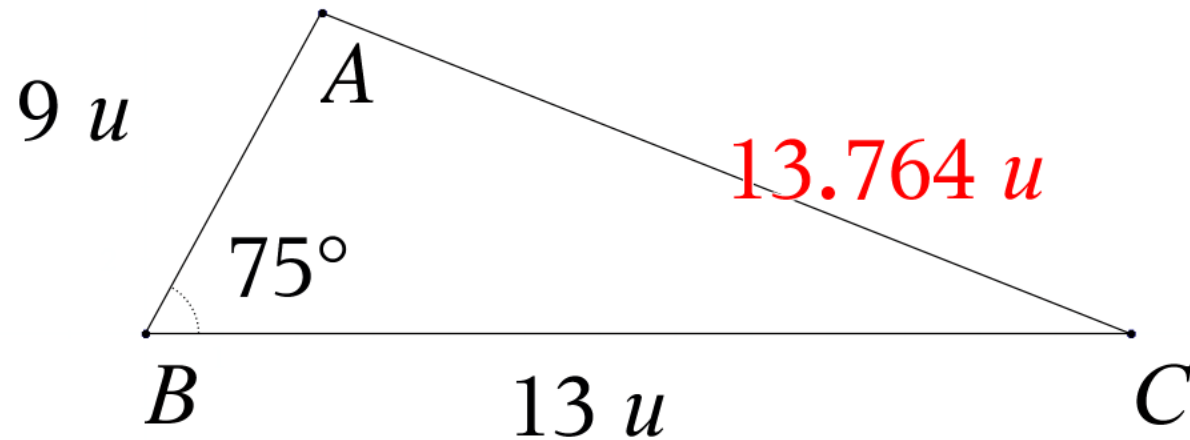


Problem 7



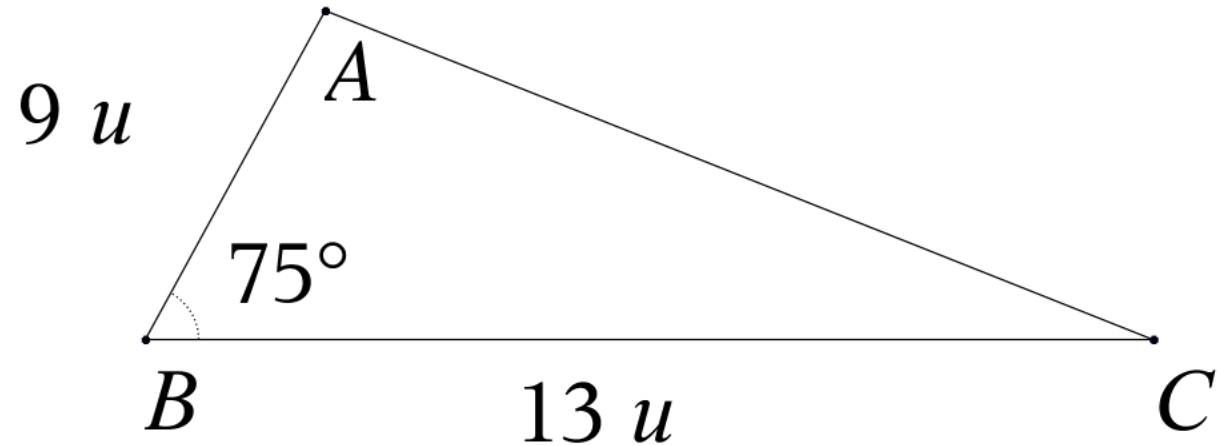


$$\begin{aligned}
 b^2 &= a^2 + c^2 - 2a \cdot c \cdot \cos B \\
 &= (13)^2 + (9)^2 - 2(13) \cdot (9) \cdot \cos(75) \\
 &= 250 - 234 \cdot \cos(75)
 \end{aligned}$$



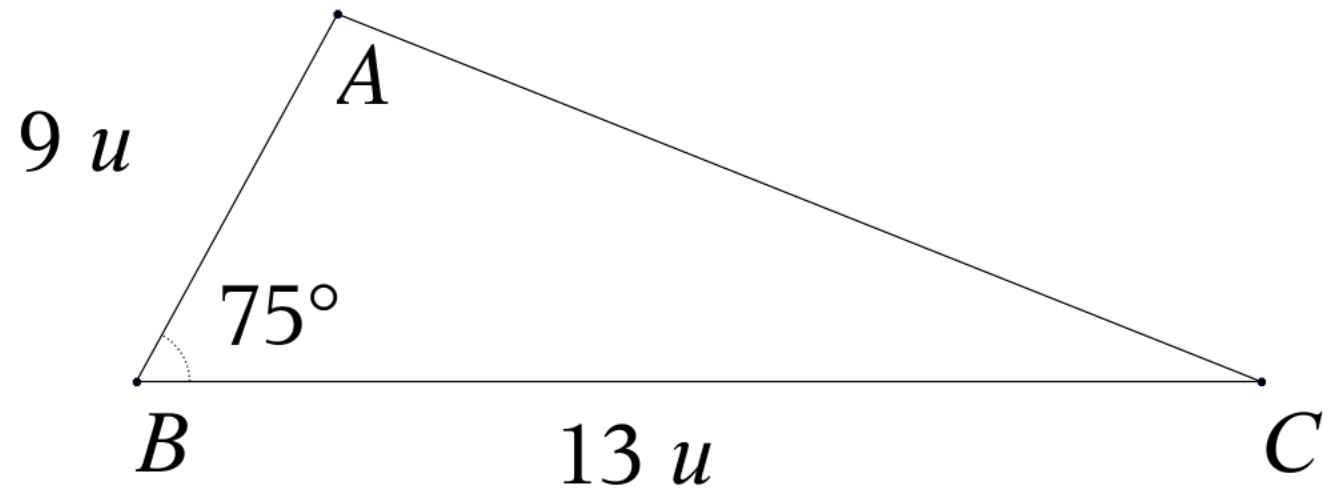
$$b = \sqrt{250. - 234. \cos(75)}$$

$$b \approx \sqrt{189.436} \approx 13.764$$

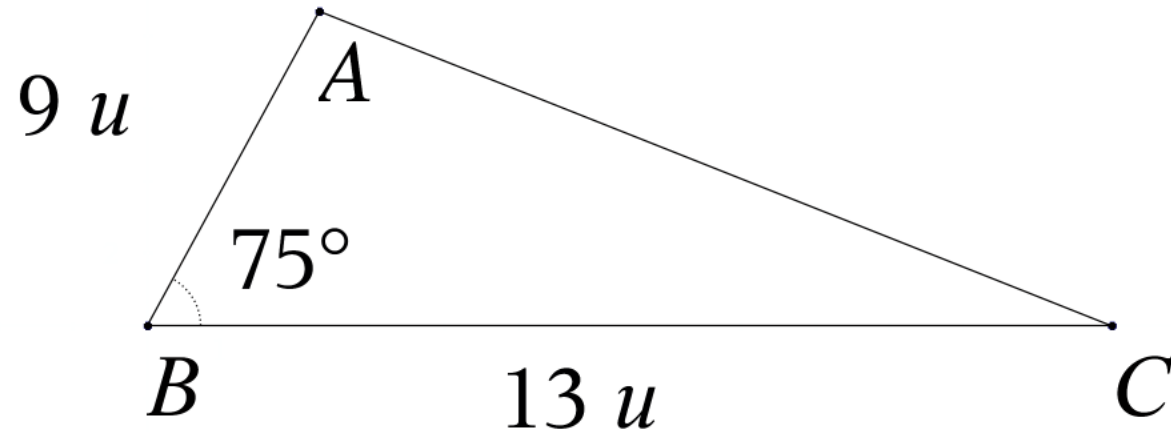


$$\frac{\sin A}{13} = \frac{\sin(75)}{13.764} = \frac{\sin C}{9}$$

a_1 b_1 $angle_b$ c_1

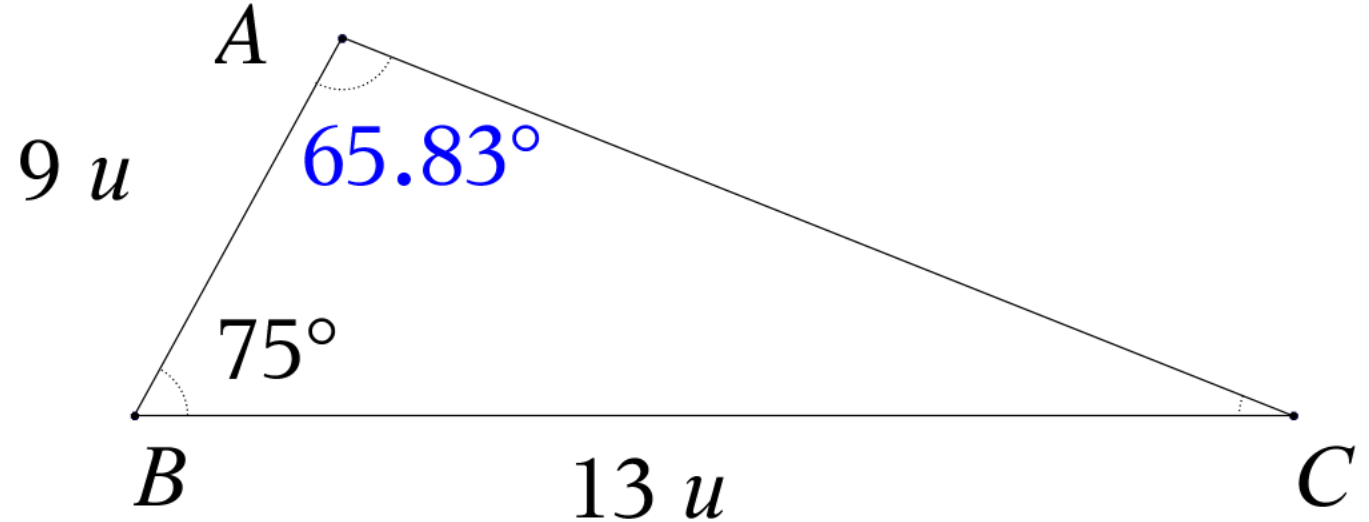


$$\frac{\sin A}{13} = \frac{\sin(75^\circ)}{13.764} \rightarrow \sin A = \frac{13 \sin(75^\circ)}{13.7636}$$



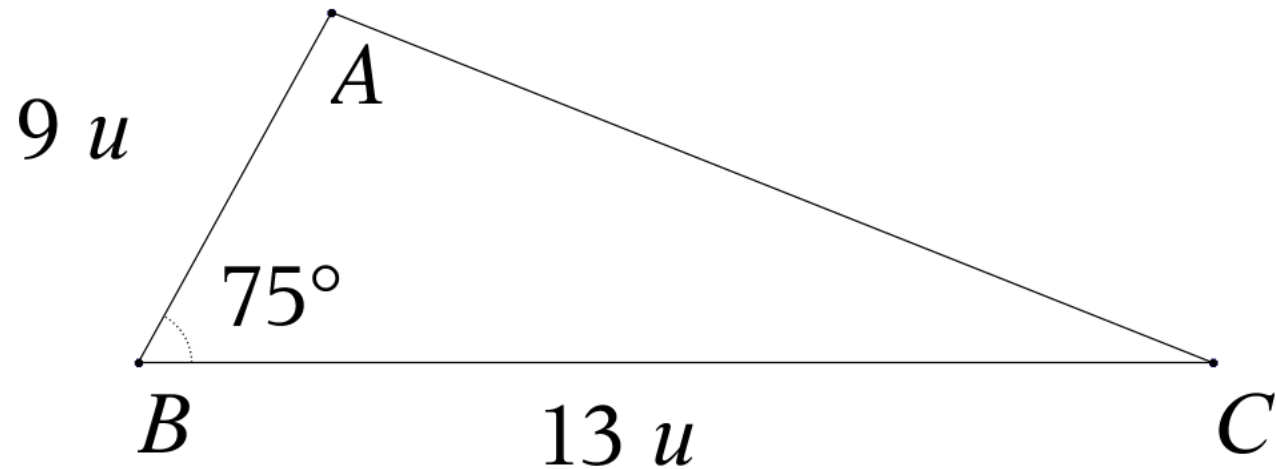
$$\frac{\sin A}{13} = \frac{\sin(75^\circ)}{13.764} \rightarrow \sin A = \frac{13 \sin(75^\circ)}{13.7636}$$

$$m\angle A = \sin^{-1}\left(\frac{13 \sin(75^\circ)}{13.764}\right)$$

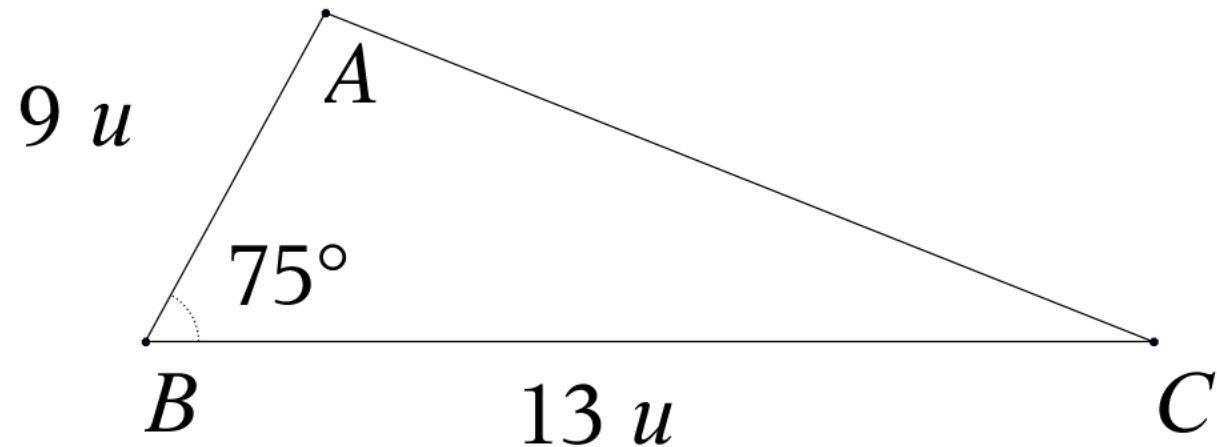


$$\frac{\sin A}{13} = \frac{\sin(75)}{13.764} \rightarrow \sin A = \frac{13 \sin(75)}{13.7636}$$

$$m\angle A \approx \sin^{-1}(0.912) \approx 65.83^\circ$$

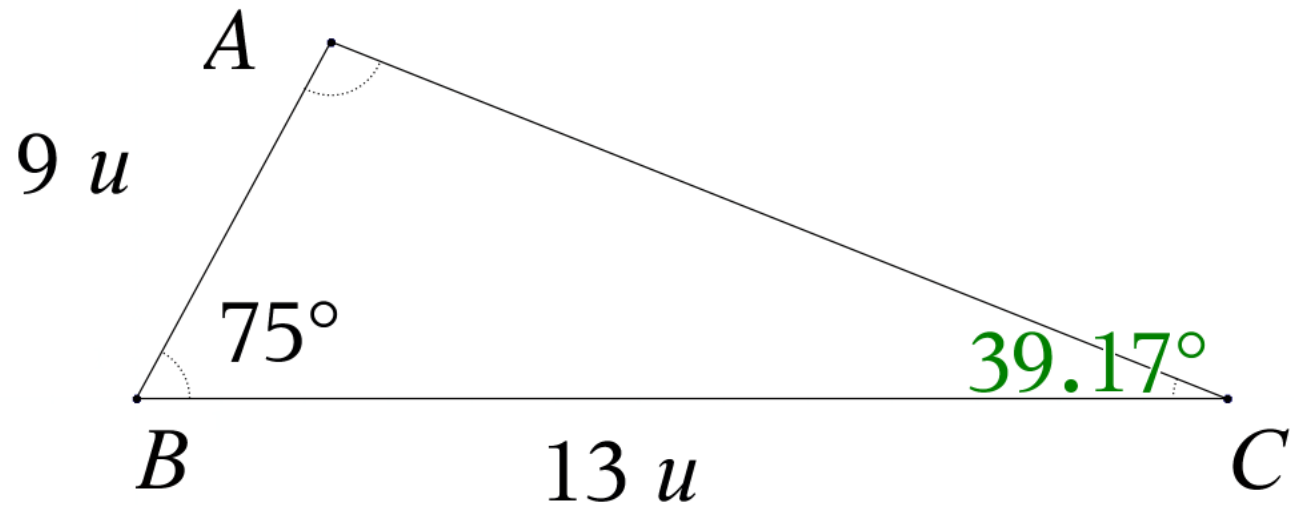


$$\frac{\sin C}{9.} = \frac{\sin(75)}{13.764} \rightarrow \sin C = \frac{9. \sin(75)}{13.7636}$$



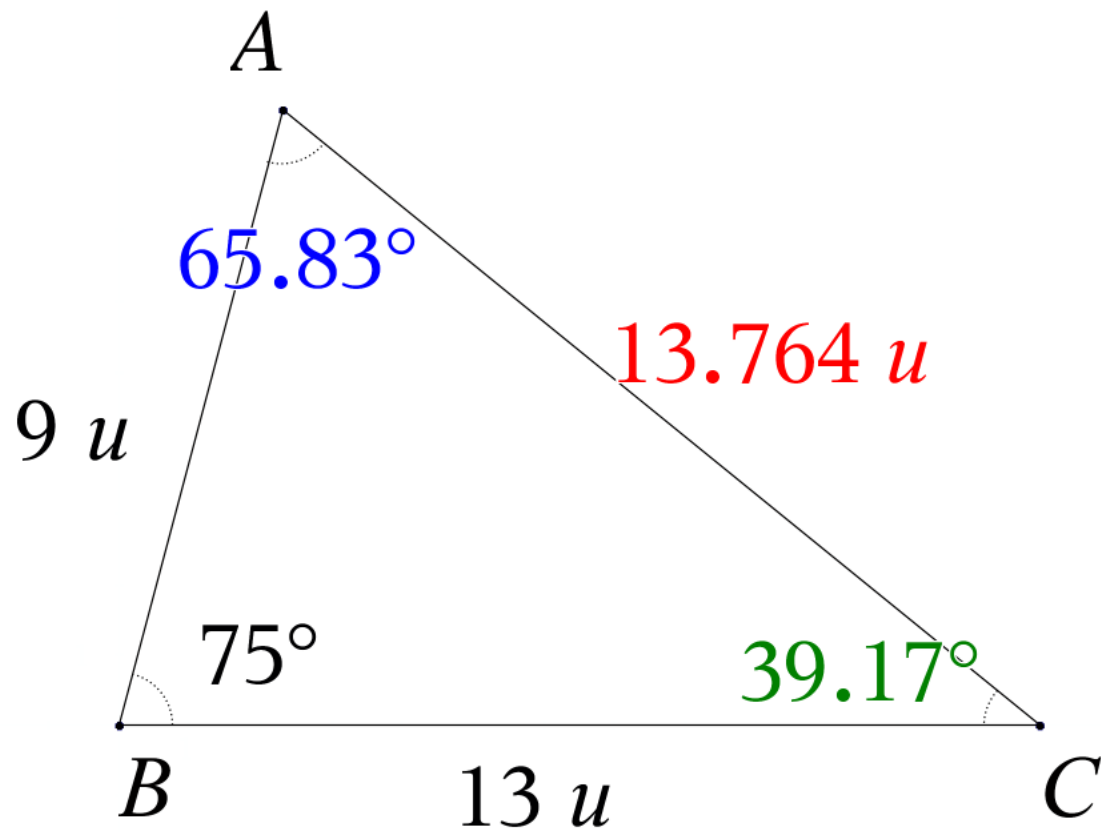
$$\frac{\sin C}{9} = \frac{\sin(75)}{13.764} \rightarrow \sin C = \frac{9 \cdot \sin(75)}{13.7636}$$

$$m\angle C = \sin^{-1}\left(\frac{9 \cdot \sin(75)}{13.764}\right)$$

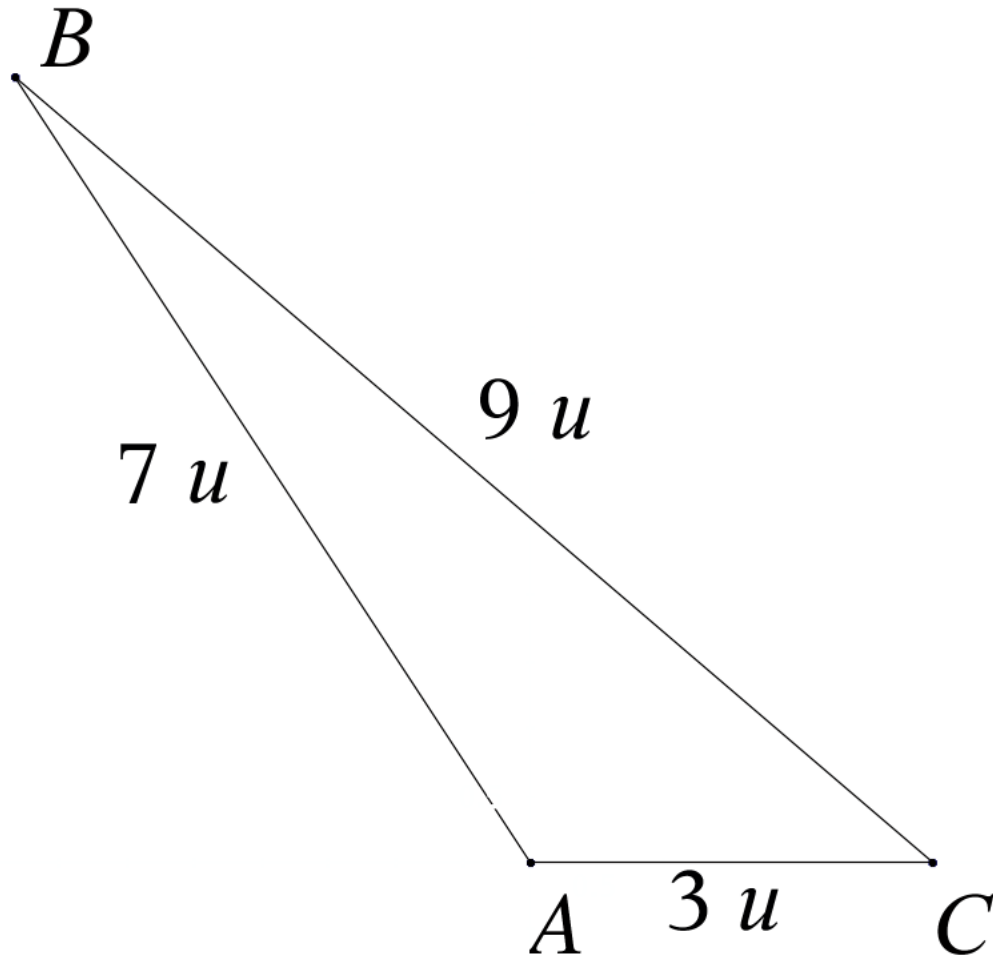


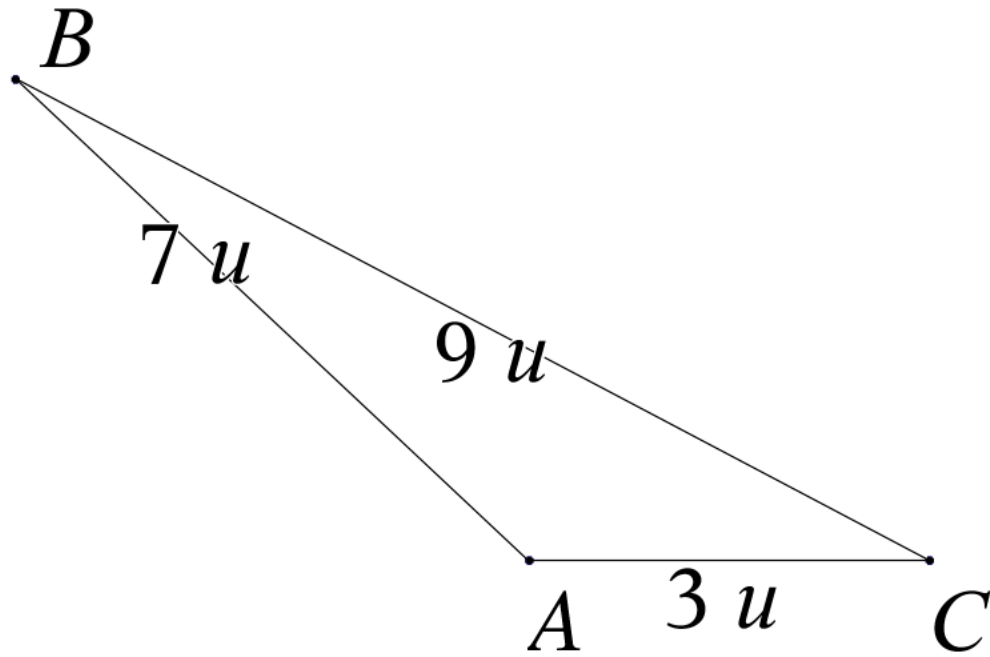
$$\frac{\sin C}{9} = \frac{\sin(75)}{13.764} \rightarrow \sin C = \frac{9 \cdot \sin(75)}{13.7636}$$

$$m\angle C \approx \sin^{-1}(0.632) \approx 39.17^\circ$$



Problem 8

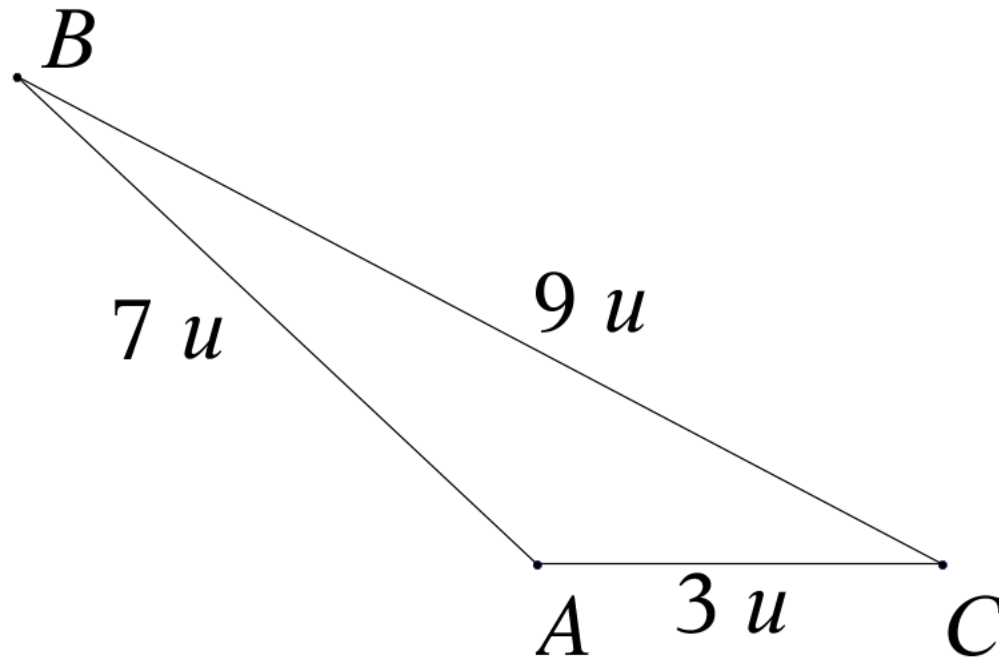




Triangle Inequality Test 1

$$|3. - 7. | < 9. < 3. + 7.$$

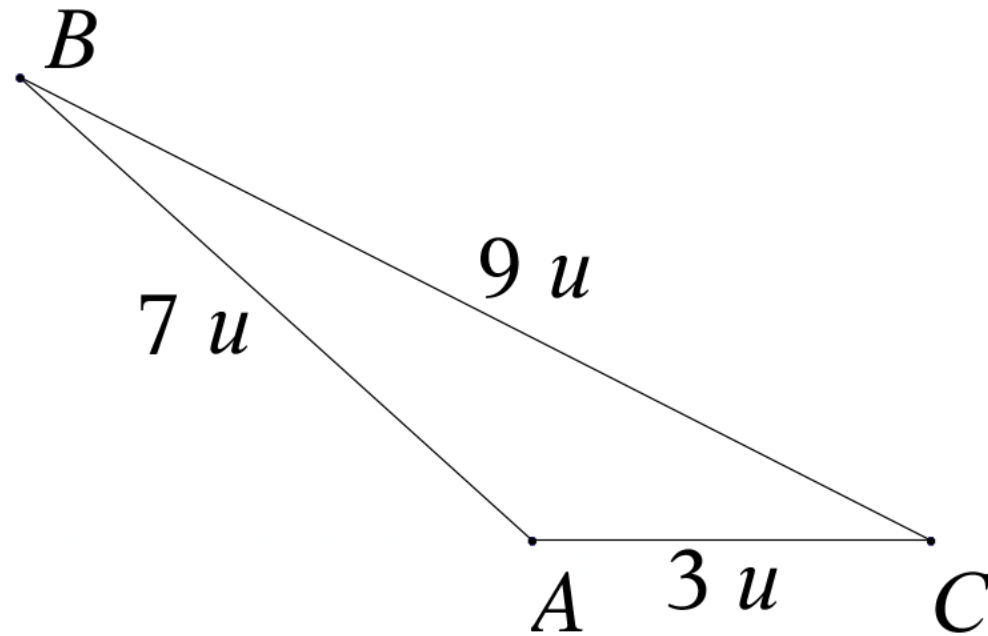
$$4. < 9. < 10.$$



Triangle Inequality Test 2

$$|9. - 7. | < 3. < 9. + 7.$$

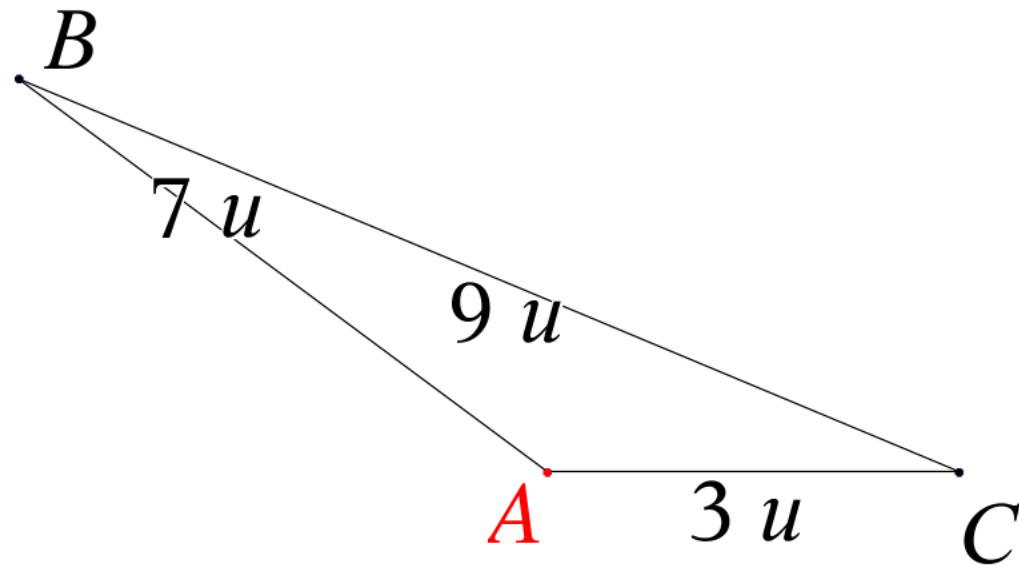
$$2. < 3. < 16.$$



Triangle Inequality Test 3

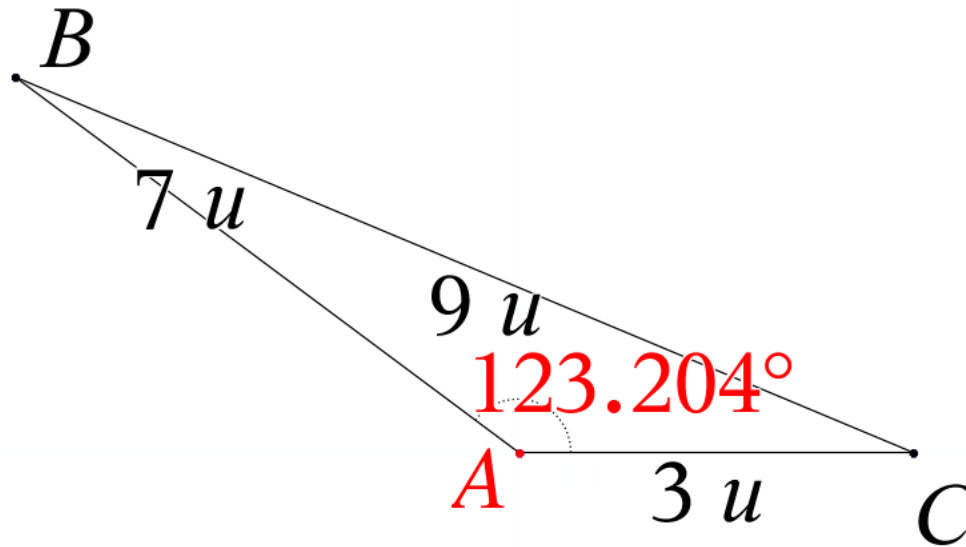
$$|9. - 3. | < 7. < 9. + 3.$$

$$6. < 7. < 12.$$



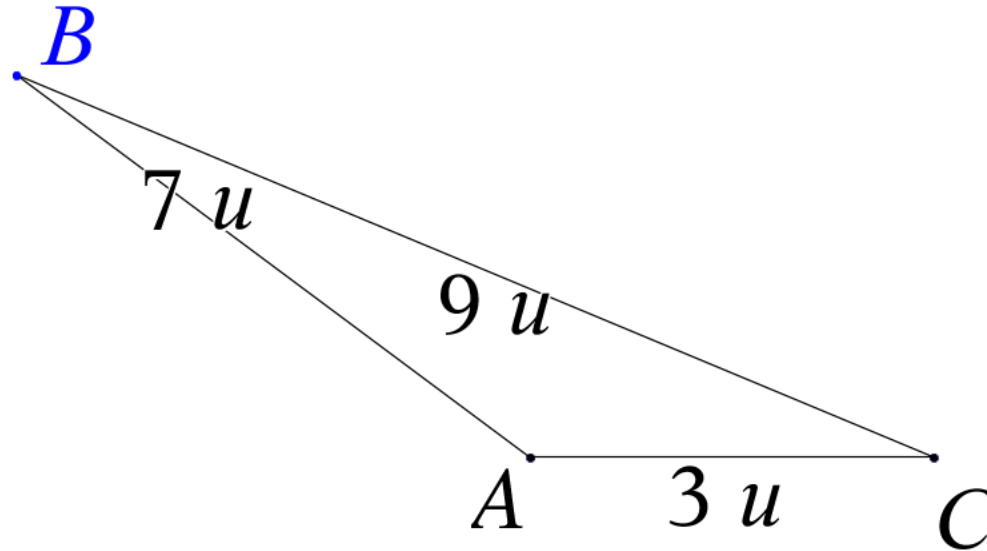
$$\cos A = \frac{b^2 + c^2 - a^2}{2 \cdot b \cdot c} = \frac{(3.)^2 + (7.)^2 - (9.)^2}{2 \cdot (3.) \cdot (7.)}$$

$$\cos A \approx -0.547619$$



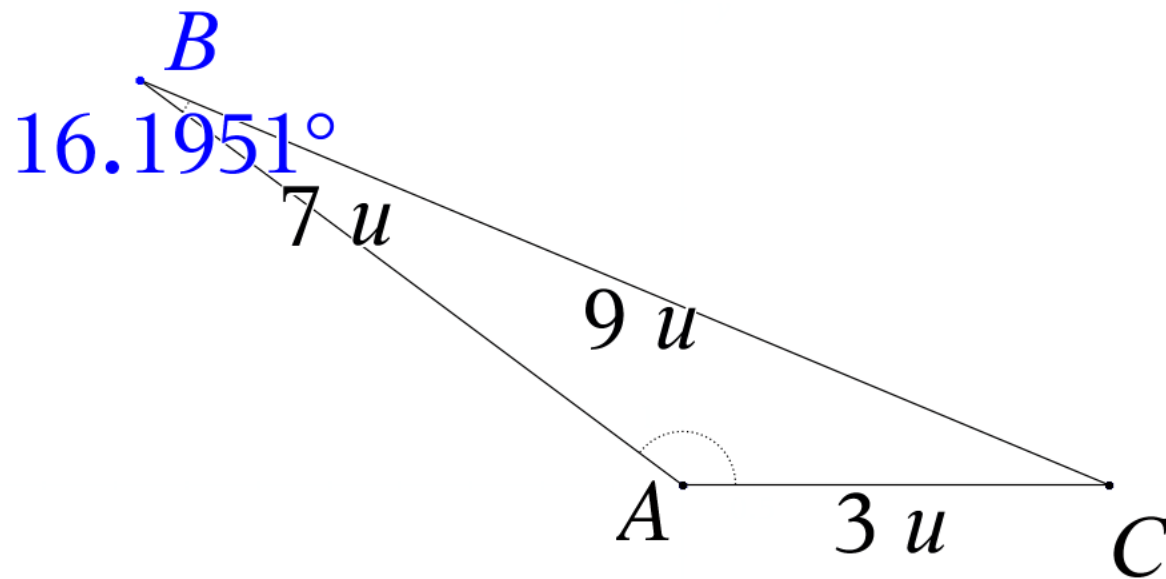
$$m\angle A = \cos^{-1} \left(\frac{(3.)^2 + (7.)^2 - (9.)^2}{2 \cdot (3.) \cdot (7.)} \right)$$

$$m\angle A \approx \cos^{-1}(-0.547619) \approx 123.204^\circ$$



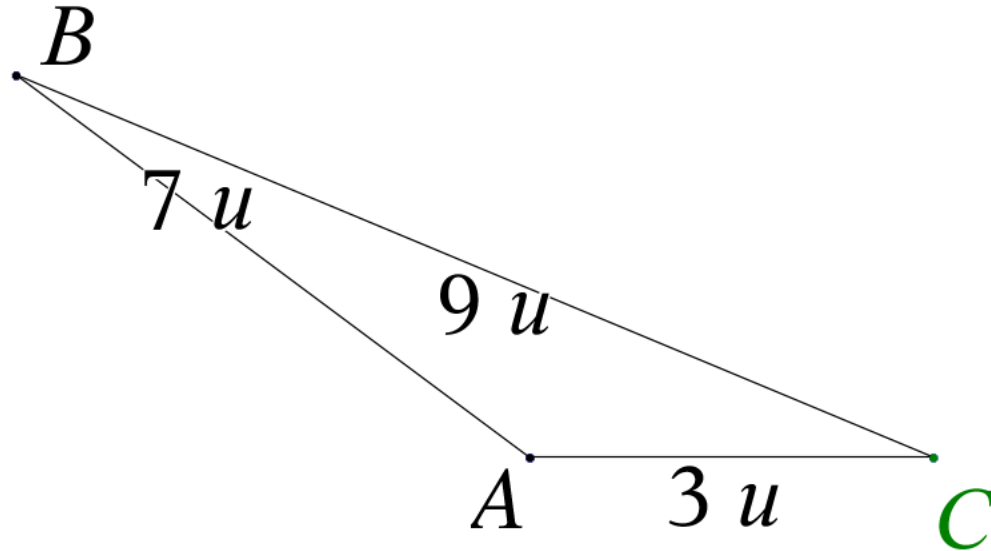
$$\cos B = \frac{a^2 + c^2 - b^2}{2 \cdot a \cdot c} = \frac{(9.)^2 + (7.)^2 - (3.)^2}{2 \cdot (9.) \cdot (7.)}$$

$$\cos B \approx 0.960317$$



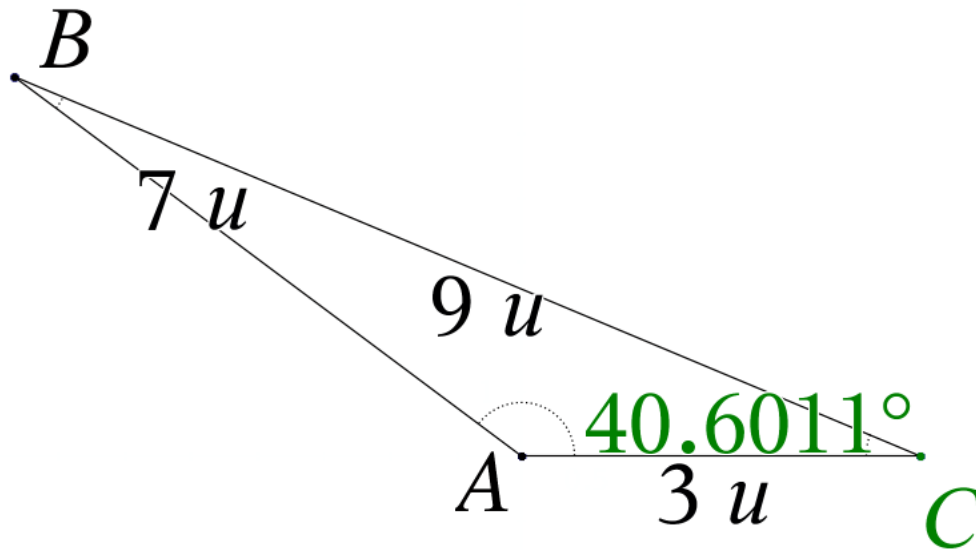
$$m\angle B = \cos^{-1} \left(\frac{(9.)^2 + (7.)^2 - (3.)^2}{2 \cdot (9.) \cdot (7.)} \right)$$

$$m\angle B \approx \cos^{-1}(0.960317) \approx 16.1951^\circ$$



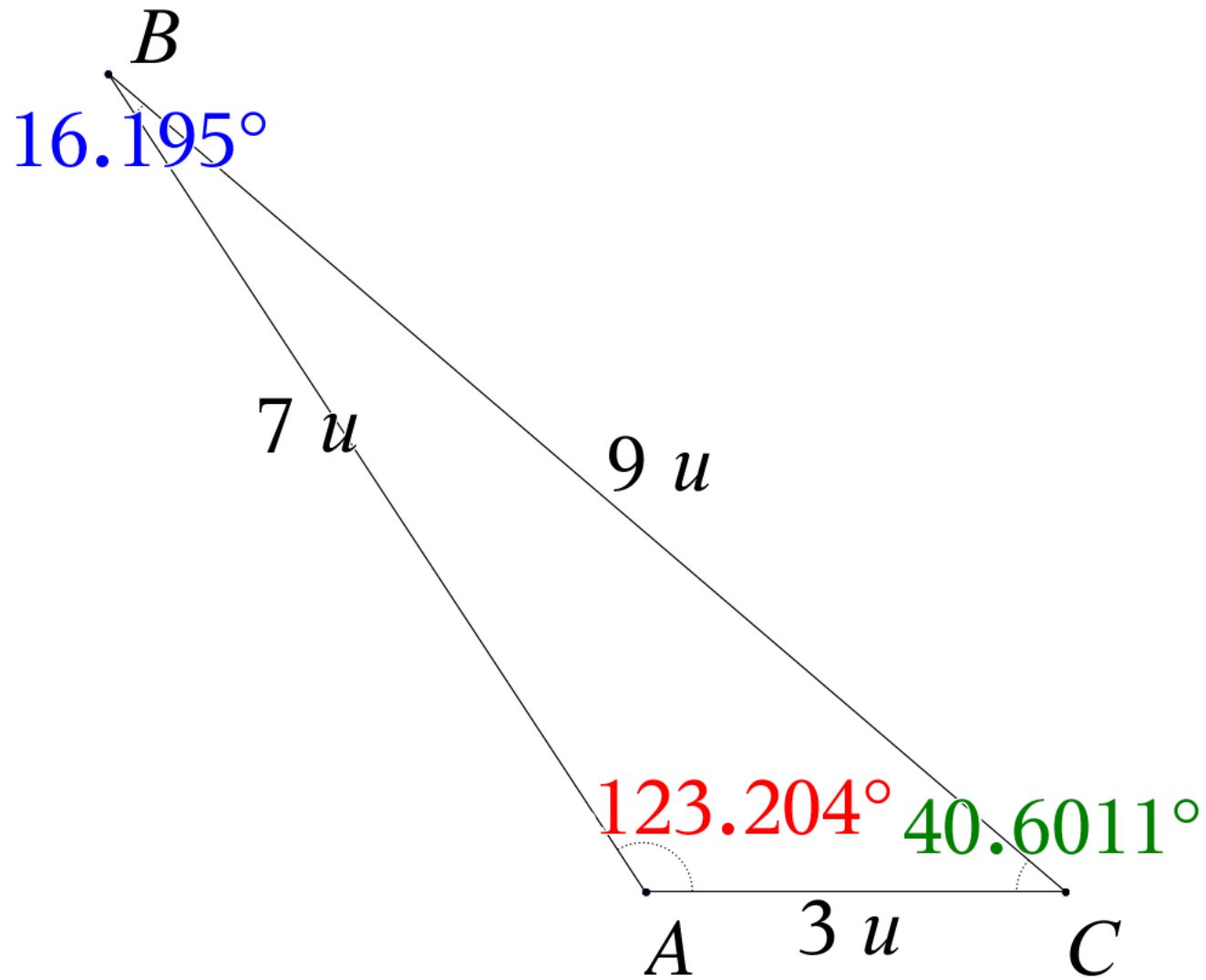
$$\cos C = \frac{a^2 + b^2 - c^2}{2 \cdot a \cdot b} = \frac{(9.)^2 + (3.)^2 - (7.)^2}{2 \cdot (9.) \cdot (3.)}$$

$$\cos C \approx 0.759259$$



$$m\angle C = \cos^{-1} \left(\frac{(9.)^2 + (3.)^2 - (7.)^2}{2 \cdot (9.) \cdot (3.)} \right)$$

$$m\angle C \approx \cos^{-1}(0.759259) \approx 40.6011^\circ$$



	A	B	C	D	E	F	G	H	I	J	K	L	M
=													
1	angle_a		a_1	9.									
2	angle_b		b_1	3.									
3	angle_c		c_1	7.									
4													
5	ratio_a	-0.54762	angle_a	123.2									
6	ratio_b	0.96032	angle_b	16.195									
7	ratio_c	0.75926	angle_c	40.601									
8													
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