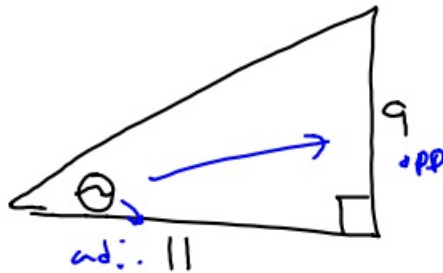


1-30-18 1st Trig



$$\sin^{-1} \sin \theta = \frac{3}{4}$$
$$\theta \approx 48.6$$

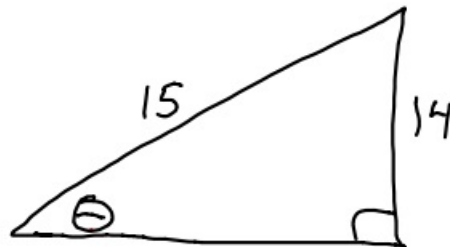
①



SOH
CAH
TOA

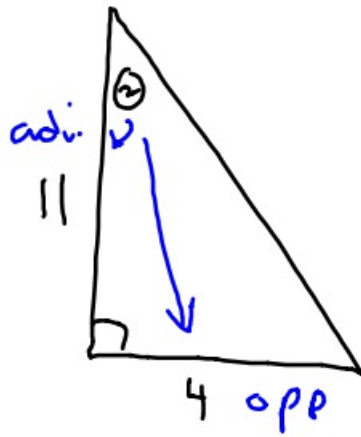
$$\tan^{-1} \tan \theta = \frac{9}{11}$$
$$\theta \approx 39.3^\circ$$

②



$$\sin^{-1} \sin \theta = \frac{14}{15}$$
$$\theta \approx 69.0^\circ$$

③



$$\tan^{-1} \tan \theta = \tan^{-1} \frac{4}{11}$$

$$\theta \approx 20.0$$



$$\frac{\tan 15^\circ}{1} = \frac{x}{200}$$

④ Solve for θ

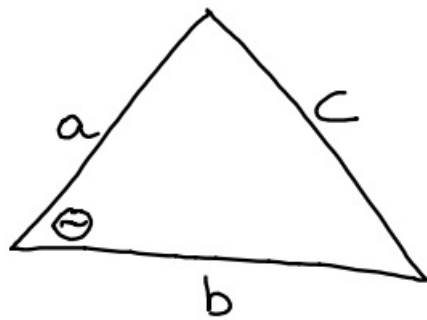
$$\begin{array}{r} 10 + 4 \cdot \tan \theta = 15 \\ -10 \qquad \qquad \qquad -10 \\ \hline \end{array}$$

$$\frac{4 \cdot \tan \theta}{4} = \frac{5}{4}$$

$$\tan^{-1} \tan \theta = \tan^{-1} \frac{5}{4}$$

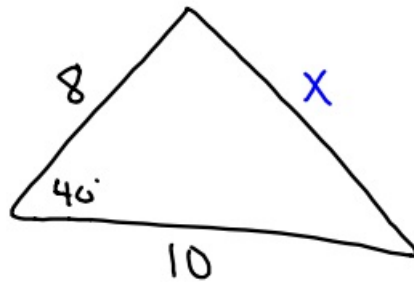
$$\theta \approx 51.3^\circ$$

New Concept



$$c^2 = a^2 + b^2 - 2ab \cdot \cos \theta$$

Ex 1:

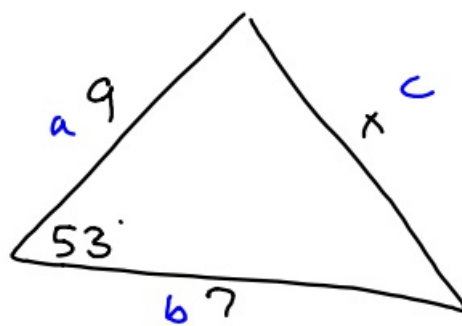


$$x^2 = 10^2 + 8^2 - 2 \cdot 10 \cdot 8 \cdot \cos 40^\circ$$

$$x^2 = 41.3 \dots$$

$$x \approx 6.4$$

①

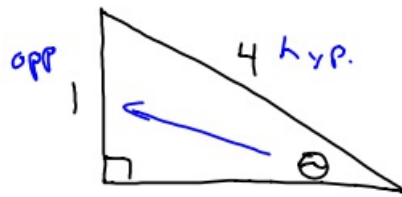


$$c^2 = a^2 + b^2 - 2ab \cos \theta$$

$$c^2 = 9^2 + 7^2 - 2 \cdot 9 \cdot 7 \cdot \cos 53^\circ$$

$$c \approx 7.36$$

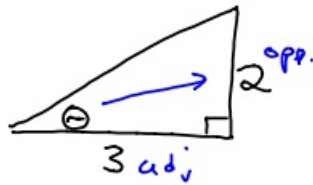
1-30-18 3rd Trig



$$\sin \theta = \frac{1}{4}$$
$$\sin^{-1} \sin \theta = \sin^{-1} .25$$

$$\theta \approx 14.5^\circ$$

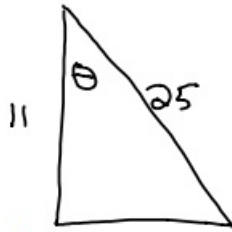
①



$$\tan^{-1} \tan \theta = \tan^{-1} \frac{2}{3}$$

$$\theta \approx 33.7^\circ$$

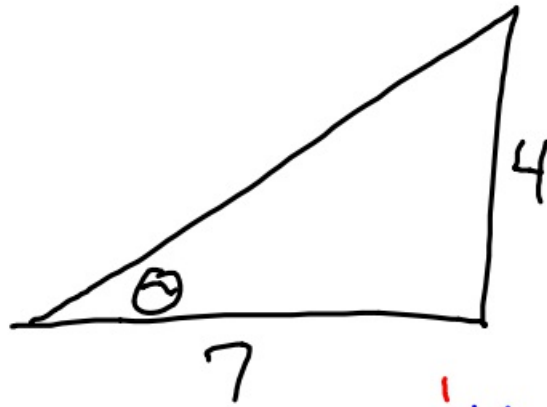
②



$$\cos^{-1} \cos \theta = \cos^{-1} \frac{11}{25}$$

$$\theta \approx 63.9^\circ$$

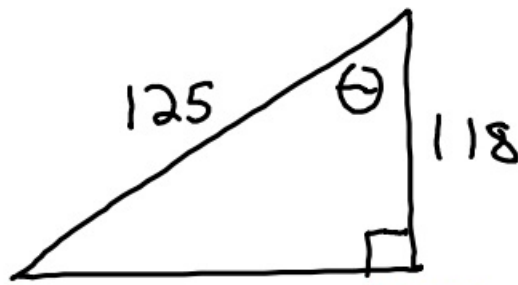
③



$$\tan^{-1} \tan \theta = \frac{4}{7}$$

$$\theta \approx 29.7^\circ$$

④

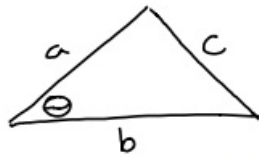


$$\cos^{-1} \cos \theta = \frac{118}{125}$$

$$\theta \approx 19.2^\circ$$

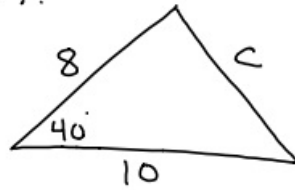
New

Law of Cosines



$$c^2 = a^2 + b^2 - 2ab \cdot \cos \theta$$

Ex 1:

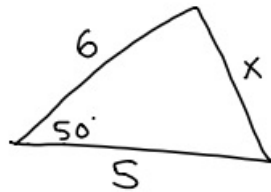


$$c^2 = 10^2 + 8^2 - 2 \cdot 10 \cdot 8 \cdot \cos 40^\circ$$

$$c^2 \approx 41.3 \dots$$

$$c \approx 6.4$$

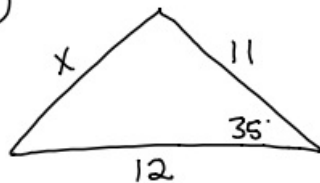
①



$$x^2 = 5^2 + 6^2 - 2 \cdot 5 \cdot 6 \cdot \cos 50^\circ$$

$$x \approx 4.7$$

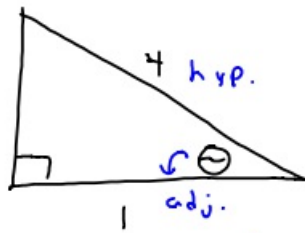
②



$$x^2 = 12^2 + 11^2 - 2 \cdot 12 \cdot 11 \cdot \cos 35^\circ$$

$$x \approx 7.0$$

1-30-18 4th Tr: 9



$$\cos \theta = \frac{1}{4}$$

$$\cancel{\cos^{-1} \cos} \theta = \cos^{-1} .25$$

$$\theta \approx 75.5^\circ$$

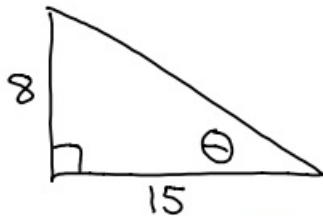
①



$$\sin^{-1} \sin \theta = \sin^{-1} \frac{9}{11}$$

$$\theta \approx 54.9^\circ$$

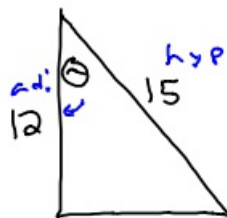
②



$$\cancel{\tan^{-1} \tan} \theta = \tan^{-1} \frac{8}{15}$$

$$\theta \approx 28.1^\circ$$

③

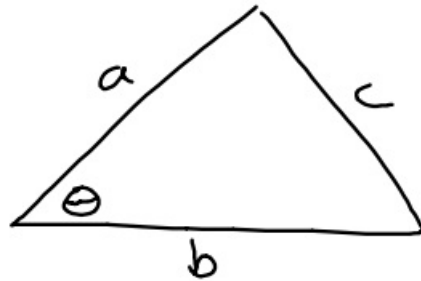


$$\cos^{-1} \cos \theta = \cos^{-1} \frac{12}{15}$$

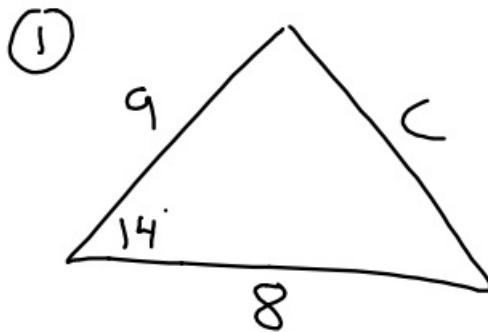
$$\theta \approx 36.9^\circ$$

New

Law of Cosines



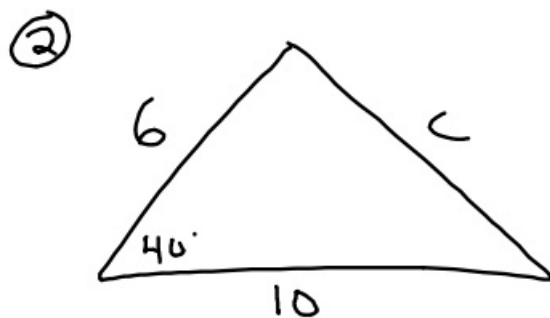
$$c^2 = a^2 + b^2 - 2ab \cdot \cos \theta$$



1.87

$$c^2 = 8^2 + 9^2 - 2 \cdot 8 \cdot 9 \cdot \cos 14^\circ$$

$$c \approx 2.3$$



$$c^2 = 10^2 + 6^2 - 2 \cdot 10 \cdot 6 \cdot \cos 40^\circ$$

$$c \approx 6.6$$