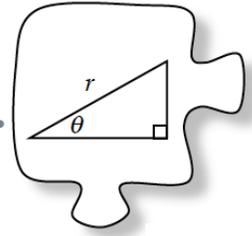


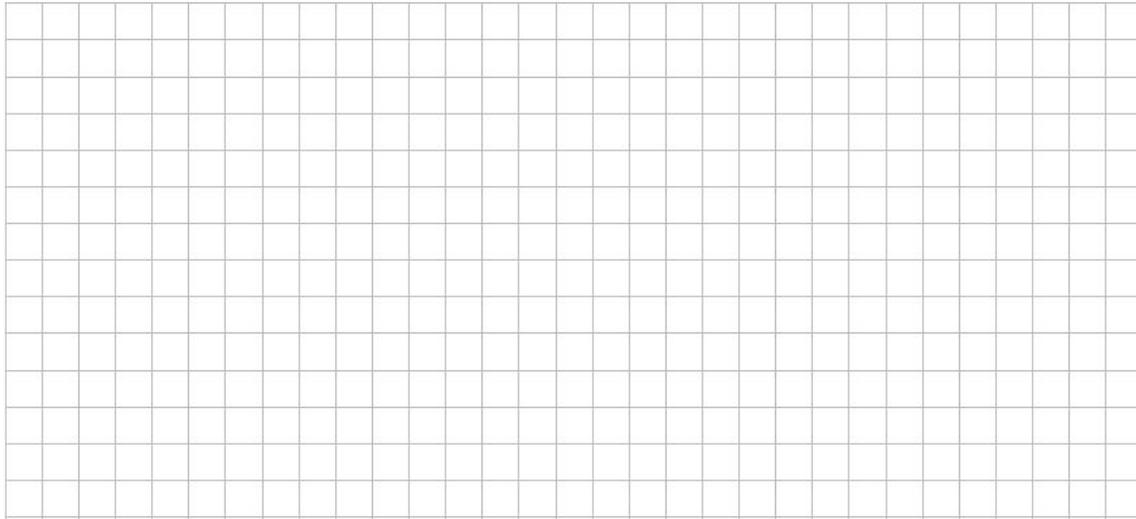
4.2.3 How can I determine the angle measure?

Inverse Trigonometry



4-78 - Mr. Gow's problem

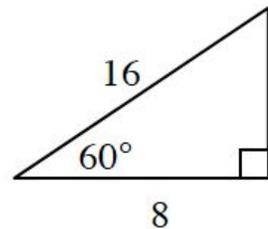
- a) Draw a diagram, making sure to label it fully.



- b) **inverse operation:** subtraction is the inverse operation for addition and vice versa, division for multiplication, square root for squaring, and more generally taking the n^{th} root for raising to the n^{th} power. (To determine an angle measure from a trigonometric ratio, you must “undo” it. These are pronounced “inverse sine”, “inverse cosine”, and “inverse tangent”. On many calculators, you must press the “inv” or “2nd” key first, then the “sin”, “cos”, or “tan” key.

- \sin^{-1}
- \cos^{-1}
- \tan^{-1}

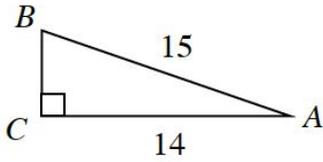
When you compute $\cos^{-1} \frac{8}{16}$ on your calculator, do you get 60° ?



- c) According to your diagram from part (a), what angle will the ramp make with the ground? Show your work. Will this ramp be to code?
- d) At least how far from the building must the ramp start in order to meet this building code? If Mr. Gow builds the ramp exactly to code, how long will the ramp be? Show all work.

4-79

Determine the measures of $\angle A$ and $\angle B$. Show all work.



Solve for $\angle A$

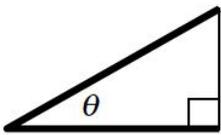
Solve for $\angle B$

$\angle A =$ _____

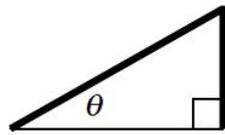
$\angle B =$ _____

What theorem about the angles in triangles could have helped you solve for the second acute angle measure?

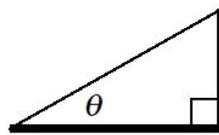
4-80



$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$



$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$



$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

Determine the measures of the variables below. (Do not assume diagrams are drawn to scale!)

<p>a)</p>	<p>b)</p>	<p>c)</p>
<p>a)</p> <p>$\theta =$ _____</p>	<p>b)</p> <p>$\theta =$ _____</p>	<p>c)</p> <p>$x =$ _____</p>

