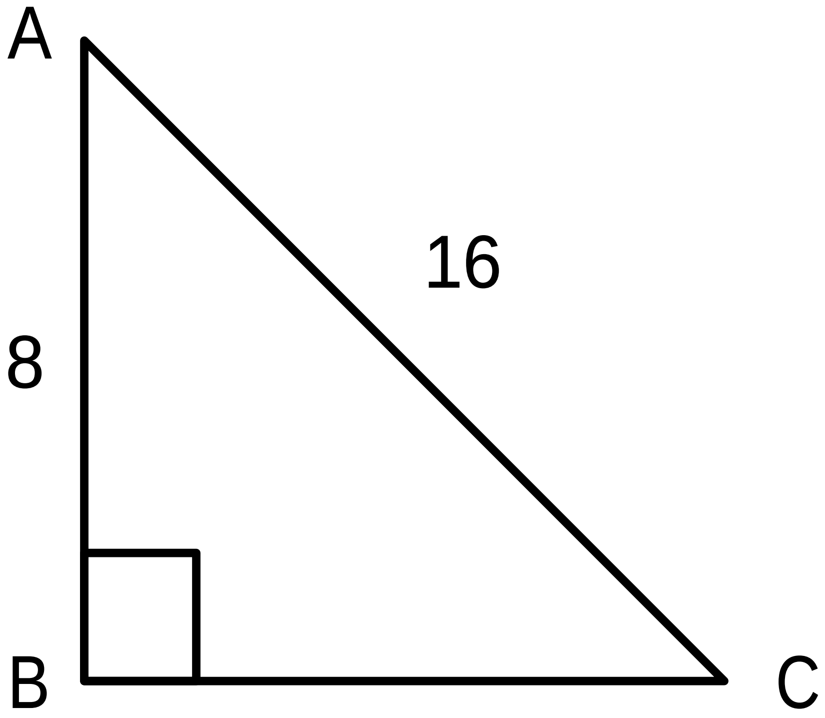
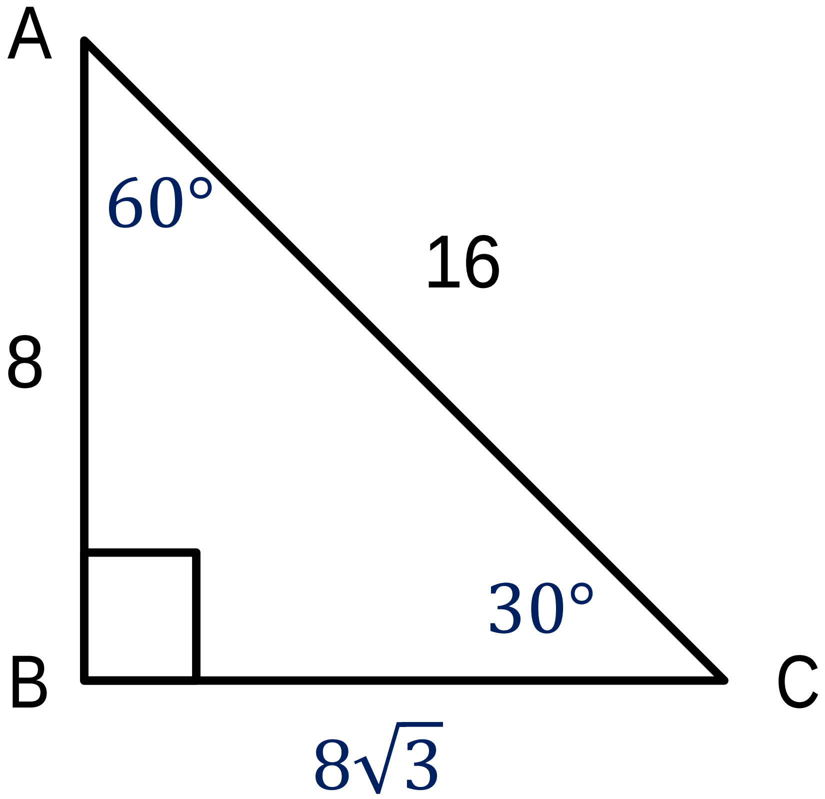
DO NOW

- Solve the following right triangle



DO NOW - ANSWERS

- Solve the following right triangle

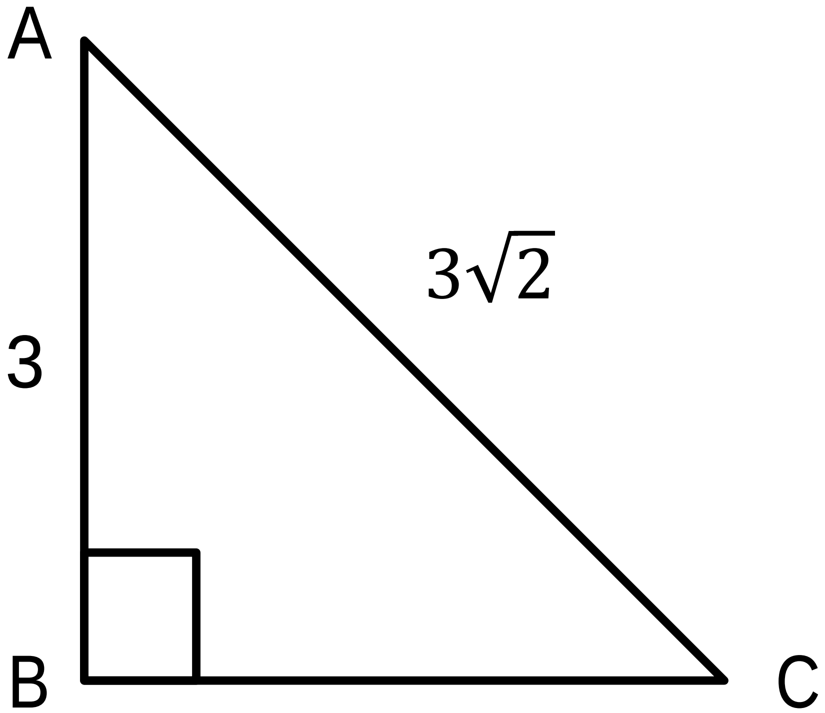


CLASS AGENDA

- Do Now
- Right Triangle Trig
- Break
- Small Group Practice
- Closure

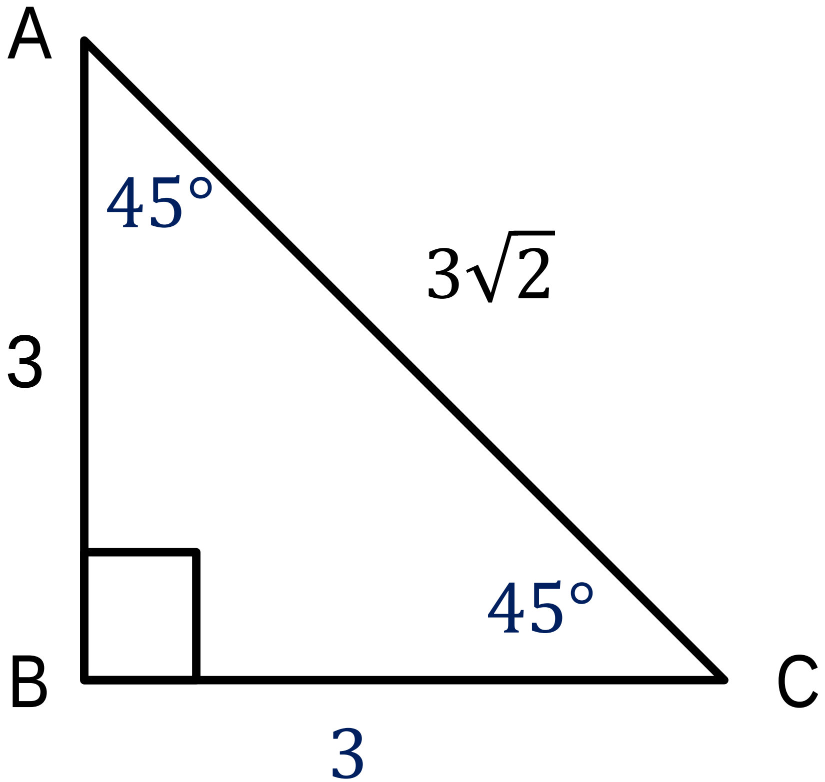
MORE PRACTICE

- Solve the following right triangle



MORE PRACTICE - ANSWERS

- Solve the following right triangle



APPLICATIONS

Steps for solving:

1. Read the problem completely
2. Read it again, draw a picture
3. Label the picture with ALL the given info
4. Write down any other givens not in the picture
5. Write down what you are solving
6. Use any formulas to write unknown in terms of what is given
7. Solve.

EXAMPLE 1

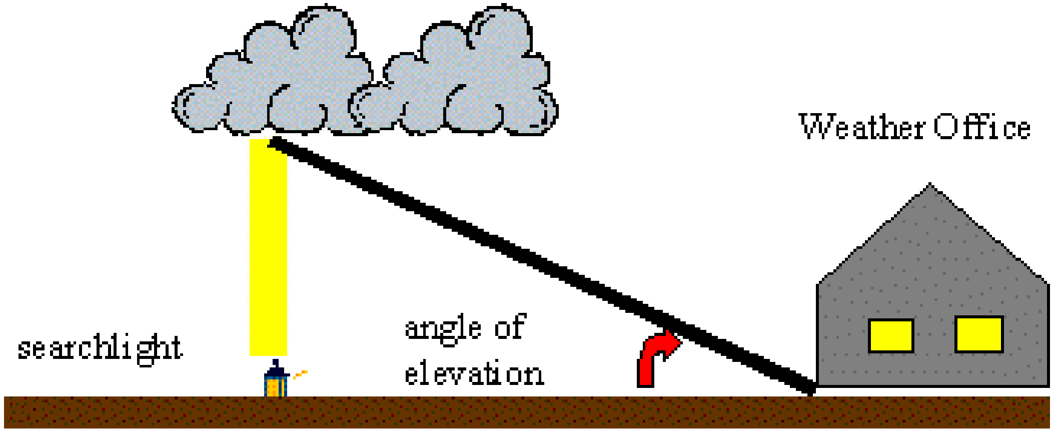
- The airport meteorologists keep an eye on the weather to ensure the safety of the flights. One thing they watch is the cloud ceiling. The cloud ceiling is the lowest altitude at which a solid cloud is visible. If the cloud ceiling is too low, the planes are not allowed to take off or land.

EXAMPLE 1 - CONTINUED

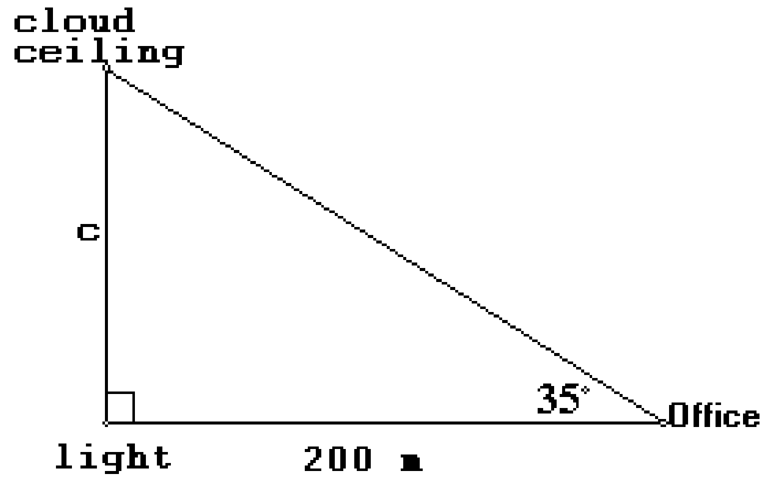
- One way a meteorologist can find the cloud ceiling at night is to shine a searchlight that is located at a fixed distance from their office vertically into the clouds. Then they measure the angle of elevation to the spot of light on the cloud. The angle of elevation is the angle formed by the line of sight to the spot and the horizontal. Using trigonometry, the cloud ceiling can be determined.

EXAMPLE 1 - CONTINUED

- A searchlight located 200 meters from a weather office is turned on. If the angle of elevation to the spot of light on the clouds is 35°, how high is the cloud ceiling?



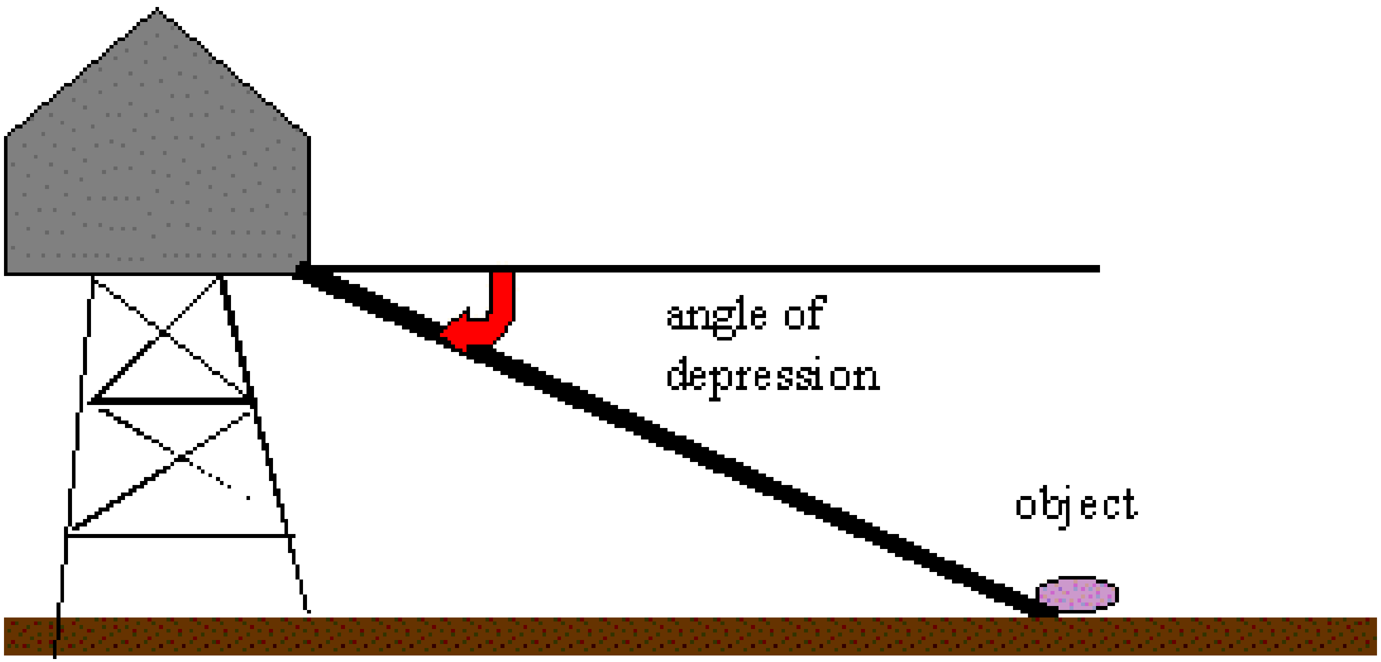
SOLUTION



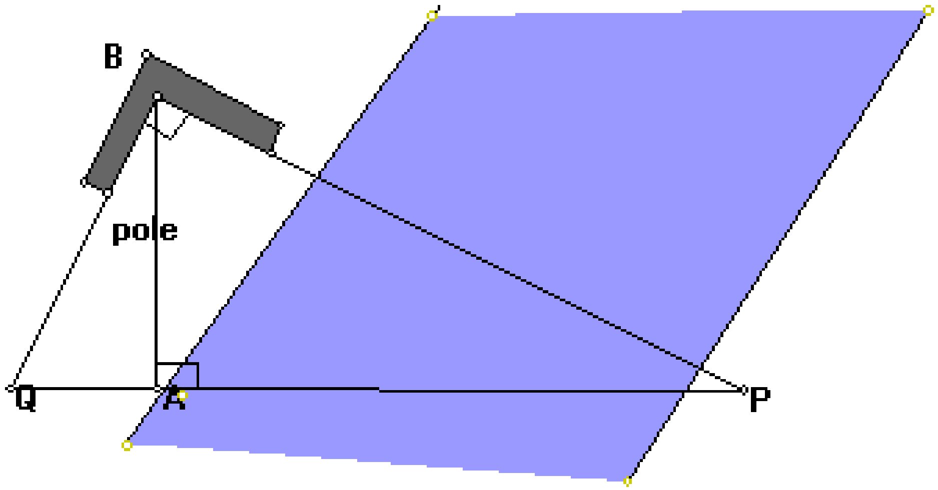
- $\tan 35° = \dfrac{c}{200\ m}$
- $200(\tan 35°) = c$
- 140 meters ~ c

NOTE

- Angle of depression occurs when the line of sight is above the object:

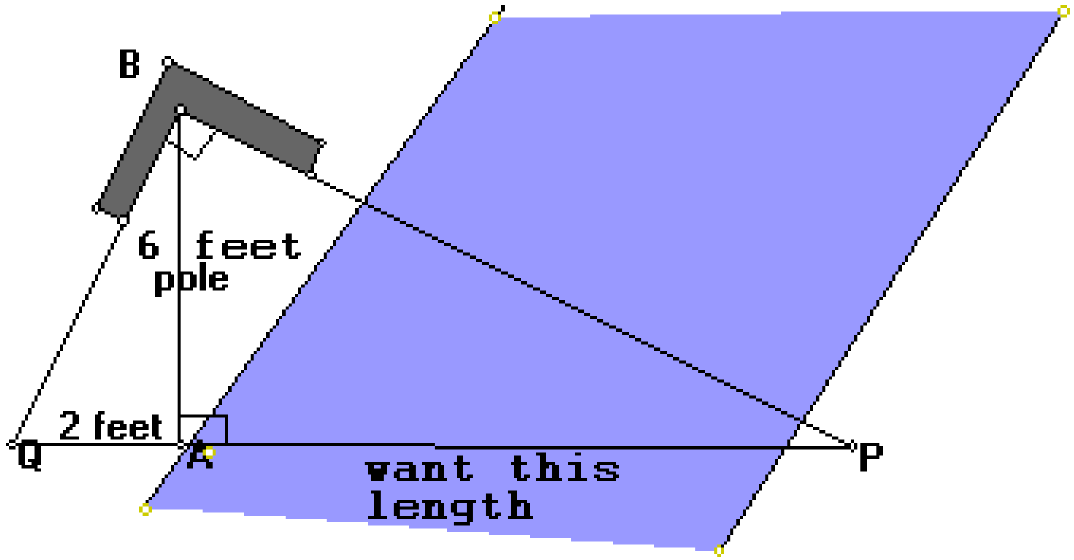


EXAMPLE 2



- Joey is using a carpenter’s square to find the distance across a river. He put the square on the top of a pole which is high enough to sight along a straight line from one of the legs of the carpenter’s square across the river to point P. He then sights along the other leg of the carpenter’s square in a straight line to a point Q. If QA is 2 feet, and BA (the pole) is 6 feet, find AP (the distance across the river).

SOLUTION



- $BQ = \sqrt{2^2 + 6^2} = \sqrt{40} = 2\sqrt{10}$
- $\measuredangle Q = \tan^{-1}\frac{6}{2} \sim 71.57°$
- $\sec 71.57° = \frac{2+x}{2\sqrt{10}} \sim 3.16$
- $3.16\left(2\sqrt{10}\right) = 2 + \mathrm{x}$

- 18 feet = x

BREAK

GROUPS

- Form the following groups

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Jason A.	David A.	Joe Babar	Joe Bailey	Matt C.	Devin D.
Monica B.	Brina H.	Tiffany G.	Vanessa H.	Alycia N.	Cierra G.
Acacia D.	Julia P.	Alanah N.	Emily O.	Emily B.	Alexa C.
Omar O.	Hunter M.	Deanna F.	Andrew G.	Will T.	Kishan P.
Tyler S.		Nick P.	Matt K.		

GROUP PRACTICE

- In your groups, complete the application problem and present it to the class.

CLOSURE