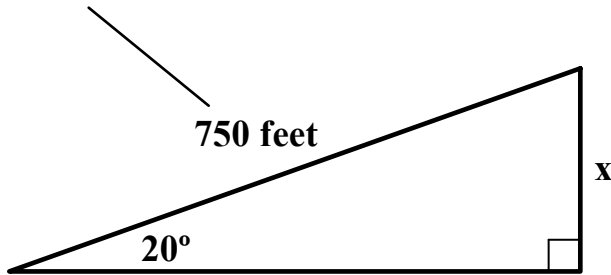


General Algebra II Worksheet #3 Unit 13 Selected Solutions

Solve each of the following problems. Show your complete solution, including an appropriate diagram, neatly organized in the space provided. All answers should be rounded to the nearest tenth.

3. An airplane takes off on level ground with a constant speed of 150 feet per second. If its flight path makes an angle of 20 degrees with the ground, then how high above the ground will it be five seconds after 'lift off'?

In 5 seconds, the plane traveled 750 feet.



Use the sine ratio.

$$\sin 20^\circ = \frac{x}{750}$$

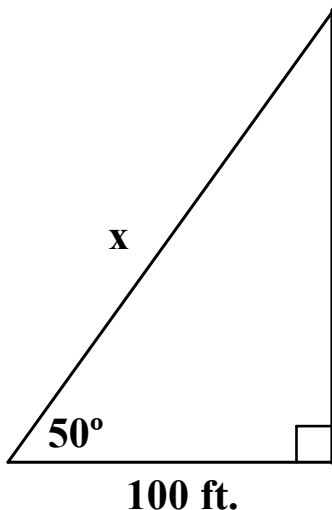
$$x = 750 \sin 20^\circ$$

$$x \approx 256.5$$

This diagram is not drawn to scale.

The plane would be about 256.5 feet above the ground.

6. A cell tower is steadied by several guy wires. Each wire is anchored at a point that is 100 feet from the base of the tower on level ground. If the angle between each wire and the ground is 50 degrees, then how long is each wire?



Use the cosine ratio.

$$\cos 50^\circ = \frac{100}{x}$$

$$x = \frac{100}{\cos 50^\circ}$$

$$x \approx 155.6$$

Each guy wire is about 155.6 feet.