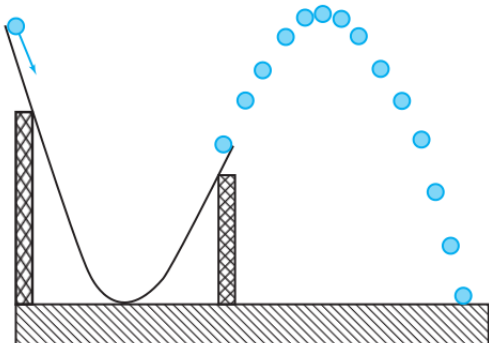1. The height in meters of a ball released from a ramp is given by the function $h(t) = -4.9t^2 + 27t + 21$, where t represents the time in seconds since the ball was released from the end of the ramp. How long will it take for the ball to hit the ground? If necessary, approximate to the nearest tenth of a second the length of each side of the original square.


A. The ball will hit the ground in approximately 6.8 seconds.

B. The ball will hit the ground in approximately 5.9 seconds.

C. The ball will hit the ground in approximately 6.6 seconds.

D. The ball will hit the ground in approximately 7.1 seconds.

E. The ball will hit the ground in approximately 5.4 seconds.

F. The ball will hit the ground in approximately 5.7 seconds.

G. The ball will hit the ground in approximately 6.2 seconds.

H. The ball will hit the ground in approximately 6.9 seconds.

2. Which equation would you solve in order to find two consecutive even integers whose product is 288?

A. You would solve the equation $x^2 + x - 144 = 0$.

B. You would solve the equation $x^2 - x - 288 = 0$.

C. You would solve the equation $x^2 + 2x - 288 = 0$.

D. You would solve the equation $x^2 - 2x + 288 = 0$.

E. You would solve the equation $x^2 + x + 144 = 0$.

F. You would solve the equation $x^2 - x - 144 = 0$.

G. You would solve the equation $x^2 - x + 144 = 0$.

H. You would solve the equation $x^2 + x - 288 = 0$.

3. Two airplanes depart simultaneously from an airport. One flies due south; the other flies due east at a rate 23 mi/h faster than that of the first airplane. After 3 hours, radar indicates that the airplanes are 450 mi apart. What is the ground speed of each airplane? Round your answer to the nearest tenth.

East

450 mi
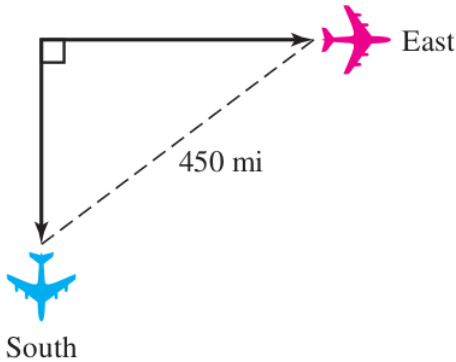
South

A. The the ground speed of the plane heading south is 93.9 miles per hour and the ground speed of the plane heading east is 116.9 miles per hour.

B. The the ground speed of the plane heading south is 93.1 miles per hour and the ground speed of the plane heading east is 114.9 miles per hour.

C. The the ground speed of the plane heading south is 93.8 miles per hour and the ground speed of the plane heading east is 121.9 miles per hour.

D. The the ground speed of the plane heading south is 93.4 miles per hour and the ground speed of the plane heading east is 117.9 miles per hour.

E. The the ground speed of the plane heading south is 94.1 miles per hour and the ground speed of the plane heading east is 123.9 miles per hour.

F. The the ground speed of the plane heading south is 93.2 miles per hour and the ground speed of the plane heading east is 118.9 miles per hour.

G. The the ground speed of the plane heading south is 93.6 miles per hour and the ground speed of the plane heading east is 120.9 miles per hour.

H. The the ground speed of the plane heading south is 94.5 miles per hour and the ground speed of the plane heading east is 122.9 miles per hour.

4. The base of a triangle (see the figure) is 5 m longer than the height. Find the base and the height if the area of this triangle is 60 m^2. If necessary, round your answer to the nearest tenth.
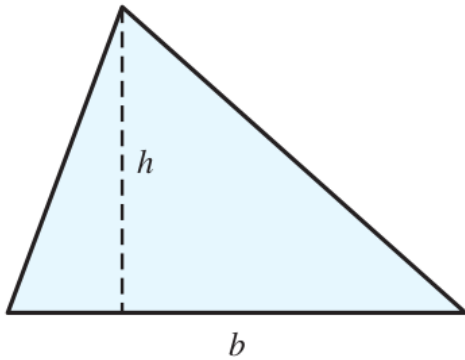
A. The height is 8.7 m.

B. The height is 9.1 m.

C. The height is 9.4 m.

D. The height is 8.1 m.

E. The height is 8 m.

F. The height is 9.3 m.

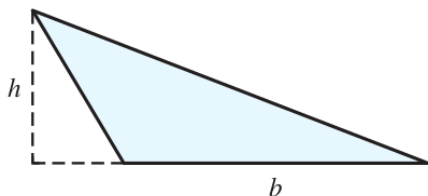G. The height is 7.9 m.

H. The height is 9 m.

5. If each side of a square is increased by 3 cm, the total area of both the new square and the original square will be 100 cm2. If necessary, approximate to the nearest tenth of a centimeter the length of each side of the original square.

A. The length of the original square is is 4.9 cm.

B. The length of the original square is is 4.8 cm.

C. The length of the original square is is 5.1 cm.

D. The length of the original square is is 5.3 cm.

E. The length of the original square is is 6 cm.

F. The length of the original square is is 6.1 cm.

G. The length of the original square is 5.4 cm.

H. The length of the original square is is 5.6 cm.

6. The sum of the squares of two consecutive integers is 113. Which equation would you solve to find these integers?

A. You would solve the equation $x^2 + 2x - 113 = 0$.

B. You would solve the equation $2x^2 - x - 112 = 0$.

C. You would solve the equation $2x^2 + 2x - 112 = 0$.

D. You would solve the equation $2x^2 + 2x - 113 = 0$.

E. You would solve the equation $2x^2 - 2x - 112 = 0$.

F. You would solve the equation $2x^2 - 2x - 113 = 0$.

G. You would solve the equation $x^2 + 2x - 112 = 0$.

H. You would solve the equation $2x^2 - x - 113 = 0$.

7. The base of a triangle (see the figure) is 1 cm longer than the height. Find the base and the height if the area of this triangle is 85 cm^2. If necessary, round your answer to the nearest tenth.

A. The height is 12.6 cm.

B. The height is 12.4 cm.

C. The height is 11.9 cm.

D. The height is 12.5 cm.

E. The height is 12.1 cm.

F. The height is 11.6 cm.

G. The height is 11.7 cm.

H. The height is 13.1 cm.

8. A couple plans to order a 14-in pizza when another couple they know joins them. Approximately what size pizza should they order to double the amount in a 14-in pizza? If necessary, round your answer to the nearest tenth. (Note: pizza size is measured by the diameter of the pie.)

A. The couple should order a 20.1-inch pizza.

B. The couple should order a 20.7-inch pizza.

C. The couple should order a 18.9-inch pizza.

D. The couple should order a 19.3-inch pizza.

E. The couple should order a 19.8-inch pizza.

F. The couple should order a 20.6-inch pizza.

G. The couple should order a 20-inch pizza.

H. The couple should order a 19.9-inch pizza.