1. If a hammer is dropped from the 33rd floor of a construction project, the distance in feet that it will fall after t seconds is given by $d = 16t^2$. Approximate to the nearest tenth of a second the time it takes the hammer to fall 25 ft.

A. It will take the hammer about 1.5 seconds to fall 25 feet.

B. It will take the hammer about 0.6 seconds to fall 25 feet.

C. It will take the hammer about 0.9 seconds to fall 25 feet.

D. It will take the hammer about 2.2 seconds to fall 25 feet.

E. It will take the hammer about 0.8 seconds to fall 25 feet.

F. It will take the hammer about 1.7 seconds to fall 25 feet.

G. It will take the hammer about 1.9 seconds to fall 25 feet.

H. It will take the hammer about 1.3 seconds to fall 25 feet.

2. Which equation would you solve in order to find two consecutive integers whose product is 156?

A. You would solve the equation $x^2 - 2x + 156 = 0$.

B. You would solve the equation $x^2 + 2x + 156 = 0$.

C. You would solve the equation $x^2 - x + 78 = 0$.

D. You would solve the equation $x^2 + x - 78 = 0$.

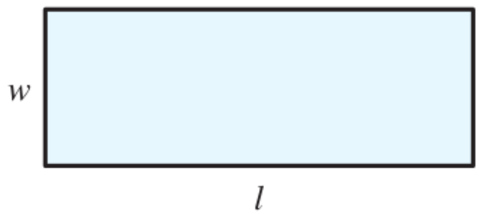
E. You would solve the equation $x^2 + x + 78 = 0$.

F. You would solve the equation $x^2 - x - 78 = 0$.

G. You would solve the equation $x^2 + x - 156 = 0$.

H. You would solve the equation $x^2 - x - 156 = 0$.

3. The length of a rectangle (see the figure) is 2 cm more than three times the width. Find the dimensions of this rectangle if the area is 21 cm2.



A. The length is 9 cm and the width is $\frac{7}{3}$ cm.

B. The length is 18 cm and the width is $\frac{7}{6}$ cm.

C. The length is 1 cm and the width is 21 cm.

D. The length is 2 cm and the width is 14 cm.

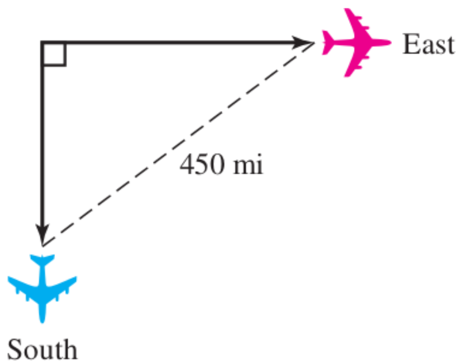
E. The length is 10 cm and the width is $\frac{14}{5}$ cm.

F. The length is 6 cm and the width is $\frac{14}{3}$ cm.

G. The length is 3 cm and the width is 7 cm.

H. The length is 6 cm and the width is $\frac{7}{2}$ cm.

4. Two airplanes depart simultaneously from an airport. One flies due south; the other flies due east at a rate 21 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.



A. The the ground speed of the plane heading south is 95.3 miles per hour and the ground speed of the plane heading east is 119 miles per hour.

B. The the ground speed of the plane heading south is 95 miles per hour and the ground speed of the plane heading east is 116 miles per hour.

C. The the ground speed of the plane heading south is 95.8 miles per hour and the ground speed of the plane heading east is 123 miles per hour.

D. The the ground speed of the plane heading south is 94.3 miles per hour and the ground speed of the plane heading east is 121 miles per hour.

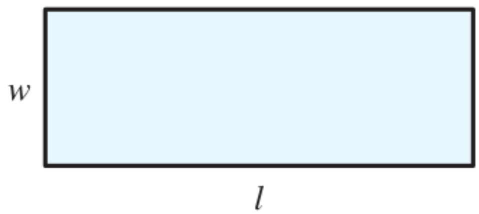
E. The the ground speed of the plane heading south is 94.2 miles per hour and the ground speed of the plane heading east is 118 miles per hour.

F. 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 120 miles per hour.

G. The the ground speed of the plane heading south is 95.4 miles per hour and the ground speed of the plane heading east is 122 miles per hour.

H. The the ground speed of the plane heading south is 94.8 miles per hour and the ground speed of the plane heading east is 125 miles per hour.

5. The length of a rectangle (see the figure) is 10 m less than twice the width. Find the dimensions of this rectangle if the area is 72 m2.



A. The length is 8 m and the width is 9 m.

B. The length is 4 m and the width is 18 m.

C. The length is 128 m and the width is $\frac{9}{16}$ m.

D. The length is 16 m and the width is $\frac{9}{2}$ m.

E. The length is 32 m and the width is $\frac{9}{4}$ m.

F. The length is 24 m and the width is 3 m.

G. The length is 64 m and the width is $\frac{9}{8}$ m.

H. The length is 2 m and the width is 32 m.

6. The sum of the squares of three consecutive integers is 50. Which equation would you solve to find these integers?

A. You would solve the equation $6x^2 + 3x + 45 = 0$

B. You would solve the equation $3x^2 + 6x - 50 = 0$

C. You would solve the equation $6x^2 + 3x - 45 = 0$

D. You would solve the equation $3x^2 + 6x + 50 = 0$

E. You would solve the equation $3x^2 + 6x + 45 = 0$

F. You would solve the equation $6x^2 + 3x - 50 = 0$

G. You would solve the equation $6x^2 + 3x + 50 = 0$

H. You would solve the equation $3x^2 + 6x - 45 = 0$

7. Which equation would you solve in order to find two consecutive odd integers whose product is 99?

A. You would solve the equation $x^2 + x - 198 = 0$.

B. You would solve the equation $x^2 - x - 99 = 0$.

C. You would solve the equation $x^2 + 2x - 99 = 0$.

D. You would solve the equation $x^2 - 2x + 99 = 0$.

E. You would solve the equation $x^2 + x - 99 = 0$.

F. You would solve the equation $x^2 - x + 198 = 0$.

G. You would solve the equation $x^2 + x + 198 = 0$.

H. You would solve the equation $x^2 - x - 198 = 0$.

8. The height in feet of a golf ball hit from an elevated tee box is given by $h(t) = -16t^2+58t+29$, where t represents the time in seconds the ball is in flight.

Determine the number of seconds before the golf ball hits the ground at a height level of 0 ft.

If necessary, approximate your answer to the nearest tenth of a second.

A. The ball will hit the ground in approximately 3.3 seconds.

B. The ball will hit the ground in approximately 3.9 seconds.

C. The ball will hit the ground in approximately 3.6 seconds.

D. The ball will hit the ground in approximately 4.9 seconds.

E. The ball will hit the ground in approximately 3.4 seconds.

F. The ball will hit the ground in approximately 4.4 seconds.

G. The ball will hit the ground in approximately 4.5 seconds.

H. The ball will hit the ground in approximately 4.1 seconds.