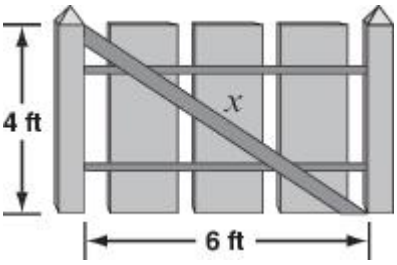
Directions: Please choose the best answer choice for each of the following questions.

1. A gate in a fence is 4 feet tall and 6 feet wide, as shown.



A wooden support is to be nailed across the diagonal of this gate. What is the approximate length, x , of the wooden support?

A. 5.0 ft
B. 6.3 ft
C. 7.2 ft
D. 10.0 ft

Answer Choice Rationale

A. This is the average of the height and base of the right triangle. The length of a right triangle's hypotenuse should not be less than the length of either of the triangle's legs. To find $x = 7.2$, use the following: $4^2 + 6^2 = x^2$.

B. The length of x is found by applying the Pythagorean Theorem. That is, $4^2 + 6^2 = x^2$, and so x is about 7.2 ft.

C. Correct answer.

D. The length of the hypotenuse of the right triangle formed is not the sum of the height and base of the triangle. Applying the Pythagorean Theorem, the length of x, the hypotenuse, is about 7.2 feet.

ItemID A2K.1012246
Correct C
Standard(s) MA.9-12.MA.912.G.5.1

2. A rectangle has a length of 50 feet and a width of 120 feet. What is the length of the diagonal of this rectangle?

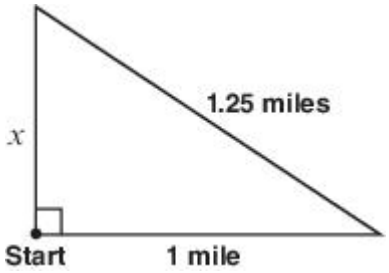
A. 70 feet
B. 130 feet
C. 150 feet
D. 170 feet

Answer Choice Rationale

A. No rationale available
B. Correct
C. No rationale available
D. No rationale available

ItemID A2KC.1087513
Correct B
Standard(s) MA.9-12.MA.912.G.5.1

3. This diagram shows the triangular route that Diane walks each morning.



How far does Diane walk each morning?

A. 2.6 miles
B. 3.0 miles
C. 3.25 miles
D. 3.5 miles

Answer Choice Rationale

A. This answer adds 1.25^2 and 1.

B. Correct answer.

C. This answer adds 1.25, 1, and 1 instead of calculating that the missing side length is 0.75 miles.

D. This answer adds 1.25, 1.25, and 1 instead of calculating that the missing side length is 0.75 miles.

ItemID A2K.1011324
Correct B
Standard(s) MA.9-12.MA.912.G.5.1

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4. Jenna is putting up a slide that is 13 ft. long. The bottom of the slide is on the ground 12 ft. from the base of the stand. How high up on the stand is the top of the slide?

   A. 1 ft.

   B. 5 ft.

   C. 10 ft.

   D. 25 ft.

Answer Choice Rationale

A. No rationale available

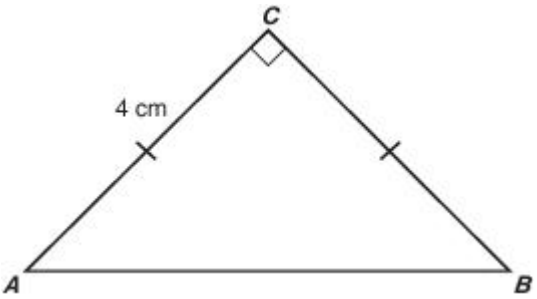
B. Correct

C. No rationale available

D. No rationale available

ItemID A2KC.1132345
Correct B
Standard(s) MA.9-12.MA.912.G.5.1

5. In right ΔACB shown below, what is the length of $\overline{AB}$?



   A. 4 cm

   B. $4\sqrt{2}$ cm

   C. 8 cm

   D. $8\sqrt{2}$ cm

Answer Choice Rationale

A. Student incorrectly gives the length of the side $\overline{BC}$.

B. Correct answer

C. Student incorrectly considers the length of side $\overline{AB}$ equal to the sum of the other two sides of triangle.

D. Student incorrectly considers the length of side $\overline{AB}$ equal to $\sqrt{2}$ times the sum of the other two sides of triangle.

ItemID A2K.1114023
Correct B
Standard(s) MA.9-12.MA.912.G.5.1

Stop! You have finished this exam.