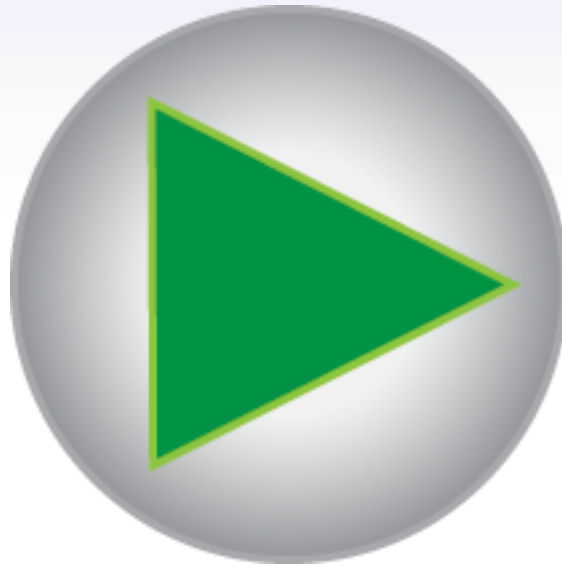


Check it out!



The length of the diagonal of a square, d , is related to the length of a side, s , by the following formula: $d = \sqrt{2} \cdot s$.

1. What is the perimeter, in terms of s , of the triangle formed by two adjacent sides and the diagonal of the square?
2. What is the perimeter of the triangle if $s = 3$ feet? Round your answer to the nearest hundredth.



Warm-Up

Working with Radicals and Properties of Real Numbers

1. What is the perimeter, in terms of s , of the triangle formed by two adjacent sides and the diagonal of the square?

- To find the perimeter, add the lengths of the sides of the triangle. The sides of the triangle that lie on the square each have length s , while the diagonal has length $d = \sqrt{2} \cdot s$. The perimeter is therefore $s + s + \sqrt{2} \cdot s$, or $2s + \sqrt{2} \cdot s$.

2. What is the perimeter of the triangle if $s = 3$ feet?
Round your answer to the nearest hundredth.

- The perimeter is $2s + \sqrt{2} \cdot s$. Substitute $s = 3$ feet into this expression and simplify:

$$2s + \sqrt{2} \cdot s$$

$$= 2 \cdot (3) + \sqrt{2} \cdot (3)$$

$$= 6 + 3\sqrt{2}$$

$$\approx 6 + 4.24$$

calculator.

$$\approx 10.24$$

Expression for the perimeter

Substitute 3 for s .

Multiply.

Simplify $3\sqrt{2}$ using a

Add.

- The perimeter of the triangle is approximately 10.24 feet.