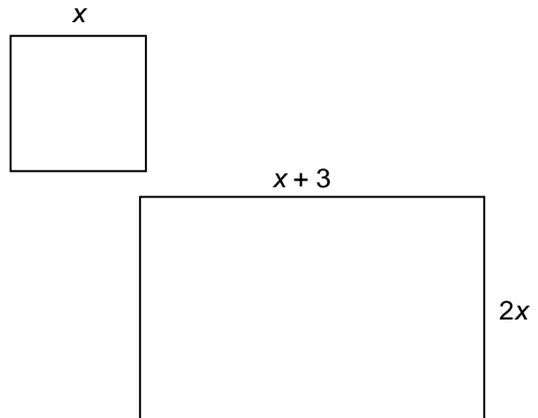




Problem 1 – A Square and a Rectangle Have Different Perimeters.

A square has sides of length x . A rectangle has one side that is twice as long and another that is 3 units longer than the sides of the square. Do these expressions reflect the description in the picture to the right?



- Write an algebraic expression for the perimeter of the square to the right.
- Write an algebraic expression for the perimeter of the rectangle to the right.
- If the rectangle has a perimeter that is 10 units longer than the perimeter of the square, which of the following equations are true?
 - a. $4x + 10 = 2(x + 3) + 2(2x)$
 - b. $4x - 10 = 2(x + 3) + 2(2x)$
 - c. $4x = (x + 3) + 2x + 10$
 - d. none of these
- What value of x will make the equation true?
- Check your answer using the **App4Math** application by pressing **APPS** and selecting **App4Math**. If your entered answer is correct, the calculator will display **true**.



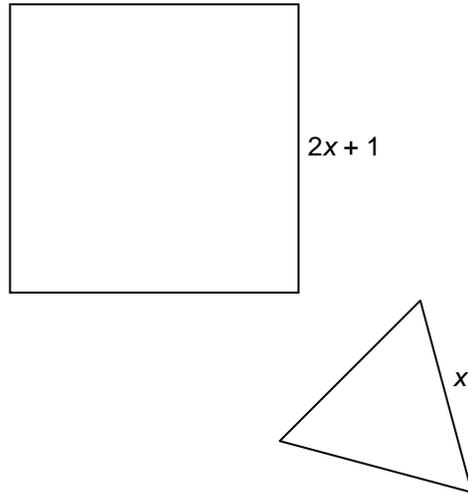
Note: x , y , z , etc. can be entered using the alpha keys or by repeatedly pressing **X,T,θ,n**.

Use **Y=** for the equals sign.



Problem 2 – An Equilateral Triangle and a Square have Different Perimeters.

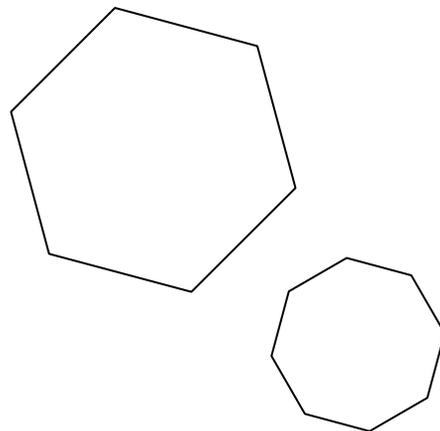
An equilateral triangle has sides of length x . A square has sides that are 1 more than twice that length. The perimeter of the square is 19 centimeters more than that of the triangle.



- How long are the sides of each polygon?
- Write an algebraic expression for the perimeter of the square.
- Write an algebraic expression for the perimeter of the triangle.
- Write an equation that shows the relationship if the perimeters of the square and triangle.
- Solve this equation and state the length of each side of the square.
- Check your answer using **App4Math**.

Problem 3 – A Regular Hexagon and a Regular Octagon

A regular hexagon has sides of length x . A regular octagon has sides that are half as long. The perimeter of the hexagon is 20 inches longer than that of the octagon.



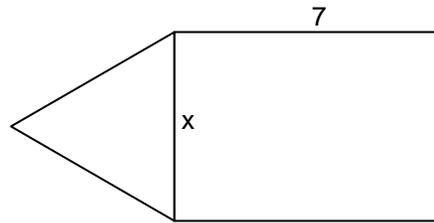
- If each side of the hexagon is of length $2x$, what is the length of each side of the octagon?
- Write an algebraic expression for the perimeter of the hexagon.



- Write an algebraic expression for the perimeter of the octagon.
- Write an equation shows the perimeter of the hexagon and octagon, then find the length of the sides of the hexagon.
- Check your answer using **App4Math**

Problem 4 – An Equilateral Triangle and a Rectangle

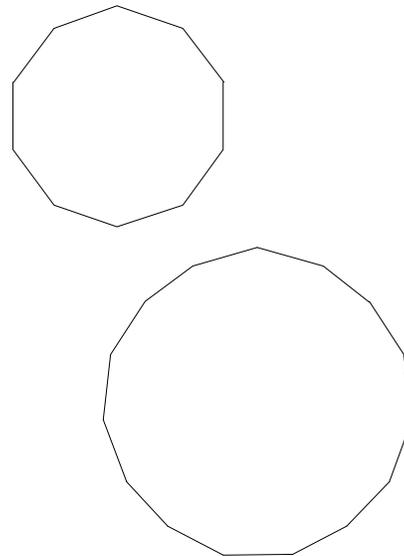
To the right is figure comprised of an equilateral triangle and a rectangle. The perimeter of the rectangle is 9 centimeters more than the perimeter of the triangle.



- Find the length, x , of each side of the triangle.

Problem 5 – Regular Decagon and 15-gon

The side lengths of the regular decagon and 15-gon to the right are equal.



- Find the difference in their perimeters.