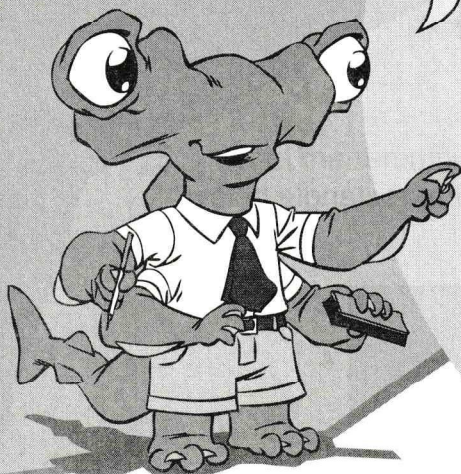


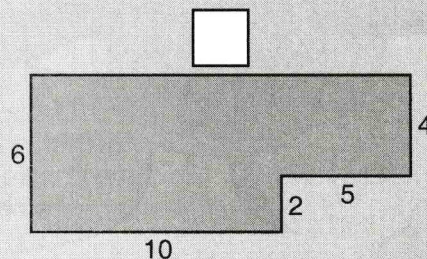
A shape is **rectilinear** if its sides always meet at right angles.

Sometimes, we can find the missing side lengths of a rectilinear shape using the opposite sides.



EXAMPLE

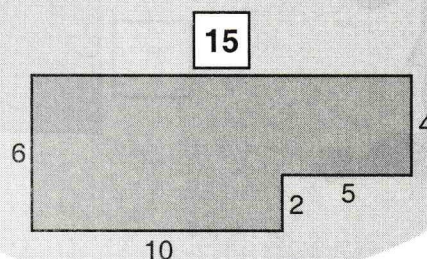
Find the missing side length of the rectilinear shape below.



We can find the width by adding the lengths of the two horizontal sides at the bottom of the shape.

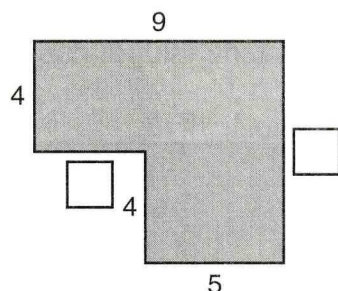
$$10 + 5 = 15.$$

The missing side length is **15**.



PRACTICE

16. Label the missing side lengths of the rectilinear shape below.

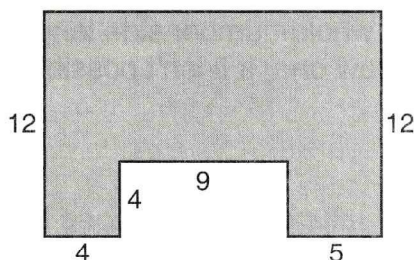


17. What is the perimeter of the shape above?

17. _____

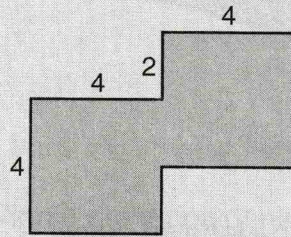
18. Find the perimeter of the rectilinear shape below.

18. _____



EXAMPLE

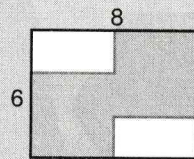
Find the perimeter of the rectilinear shape below.



The two horizontal sides on top add up to $4 + 4 = 8$, so the two horizontal sides on the bottom must also add up to 8.

The two sides on the left add up to $2 + 4 = 6$, so the two sides on the right must also add up to 6.

The perimeter of the shape is the same as a 6 by 8 rectangle:



$$6 + 8 + 6 + 8 = (6 + 8) + (6 + 8) = 14 + 14 = 28.$$

The perimeter of the shape is **28**.

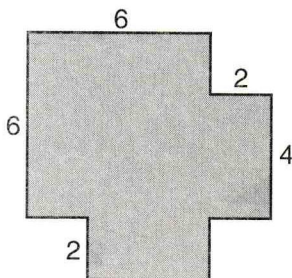
Sometimes, we can find the perimeter of a rectilinear shape without finding the lengths of all of its sides.



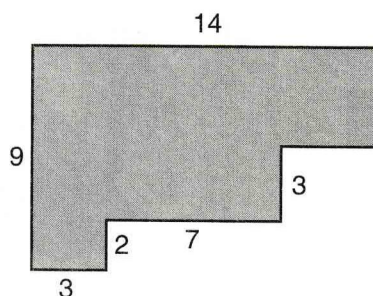
PRACTICE

Find the perimeter of each rectilinear shape below.

19.



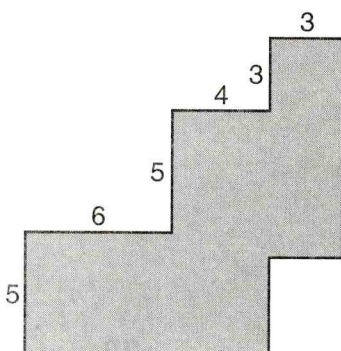
20.



19. _____

20. _____

21.

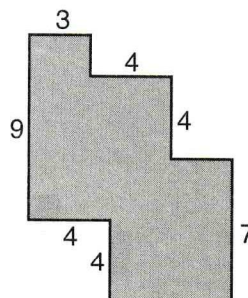


22.



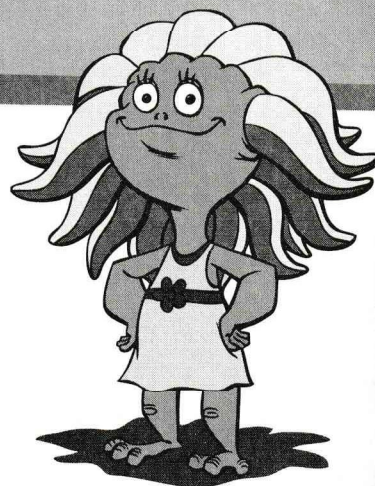
Can you find the perimeter of the rectilinear shape below? If not, can you explain why it's impossible?

21. _____



PERIMETER & AREA

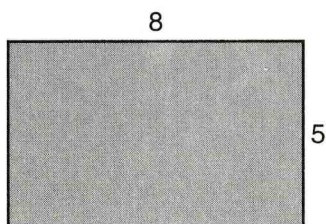
Review



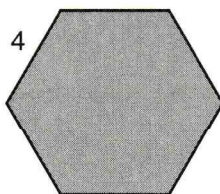
PRACTICE

Find the perimeter of each shape labeled below.

23. Rectangle



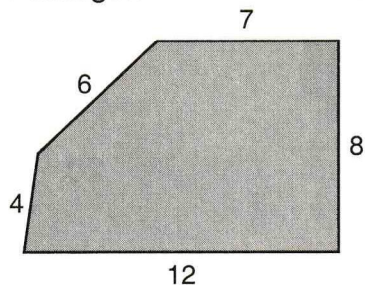
24. Regular Hexagon



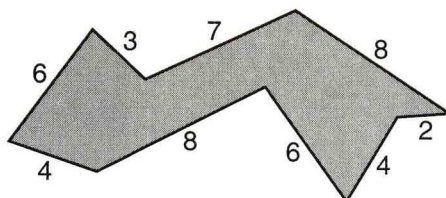
23. _____

24. _____

25. Pentagon



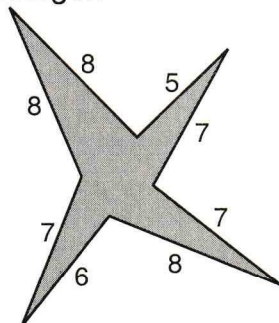
26. Nonagon



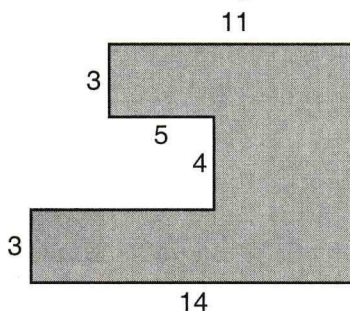
25. _____

26. _____

27. Octagon



28. ★ Rectilinear Octagon

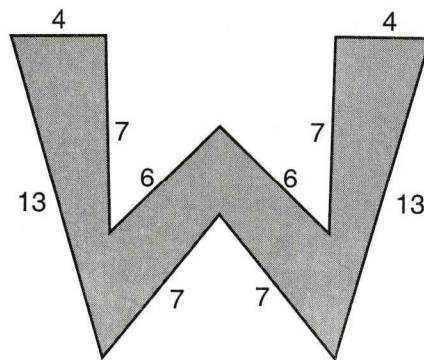
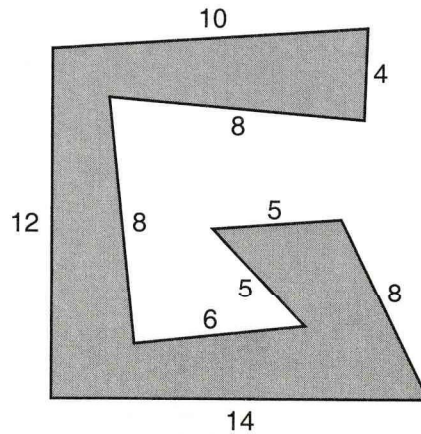
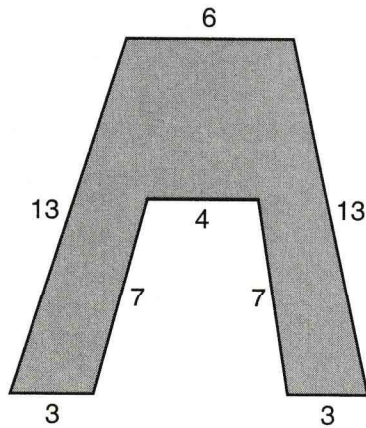


27. _____

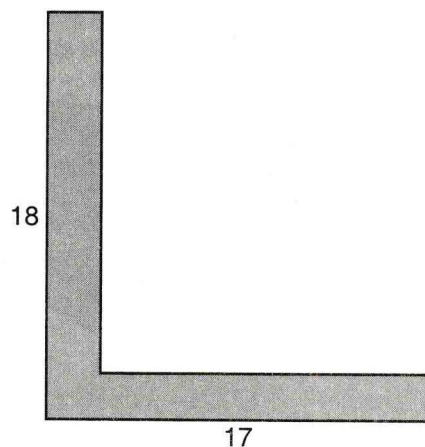
28. _____

29. Alex, Grogg, and Winnie draw polygons that look like the first letters of their names. Which polygon has the greatest perimeter?

29. _____



30. Lizzie draws a rectilinear "L". How does the perimeter of her shape compare to the perimeters of Alex's, Grogg's, and Winnie's shapes above?

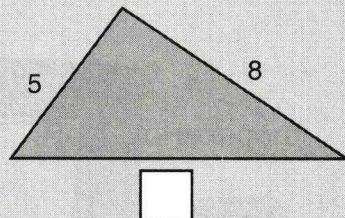


Sometimes, you can use the perimeter of a polygon and the side lengths you know to find the length of a side that you don't know.



EXAMPLE

Find the missing side length of the triangle below, which has a perimeter of 23.

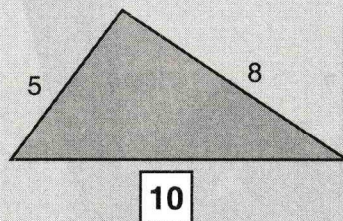


$$(5+8) + \boxed{} = 23.$$

$$13 + \boxed{} = 23.$$

$$23 - 13 = 10, \text{ so } 13 + \boxed{10} = 23.$$

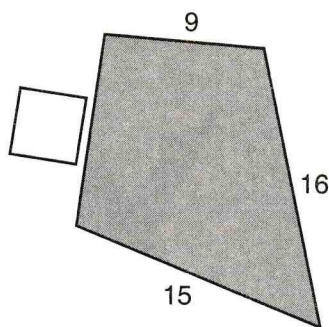
The missing side length is **10**.



PRACTICE

Use the given perimeter and side lengths to label the missing side length for each of the following polygons.

31. Perimeter = 51.



32. Perimeter = 50.

