

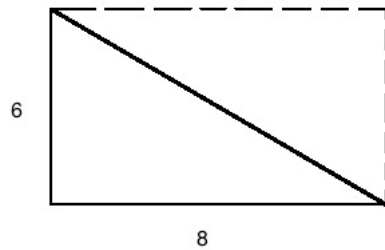
## FUN WITH AREAS

JUNIOR CIRCLE 05/15/2011

(1) What is the area of the following rectangle?

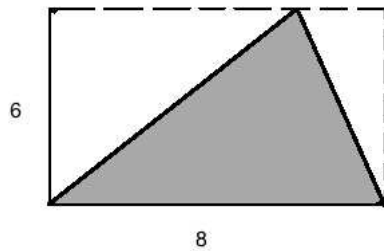


(2) What is the area of the following triangle?



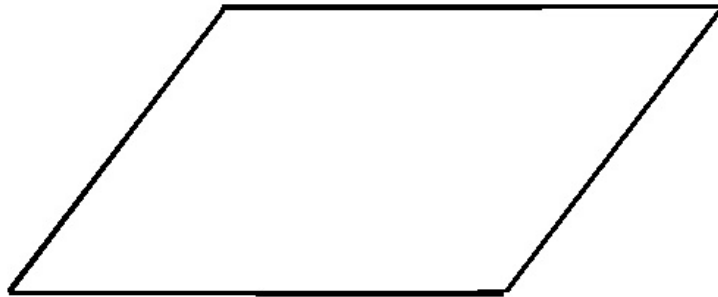
How is the area of this triangle related to the area of the rectangle in number 1?

(3) Using what you learned from question 2, what is the area of this triangle?



(4) Given the following parallelogram, follow these steps:

- Cut a triangle from the left side of the parallelogram.
- Attach it to the right side.

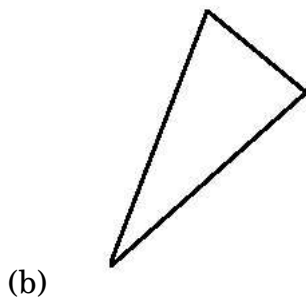
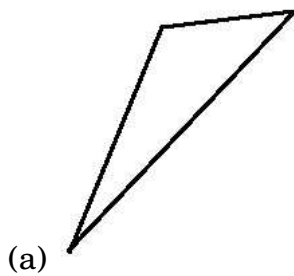


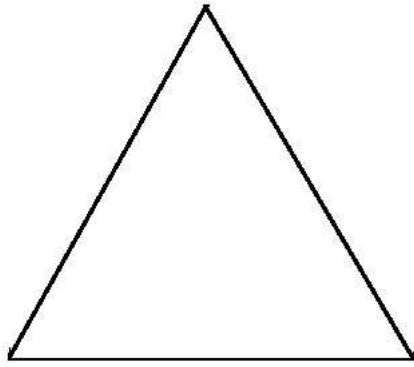
- What is the result?

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- (5) Draw a picture for the first part and use it to answer the questions.
- (a) How many squares of side length 10 fit inside a square of side length 20?
- (b) How many squares of side length 10 fit inside a square of side length 30?
- (c) How many squares of side length 10 fit inside a square of side length 40?
- (d) Explain the general pattern you see in parts (a) - (c).
- (e) If you increase the side length by a factor of 5, how does the area change?

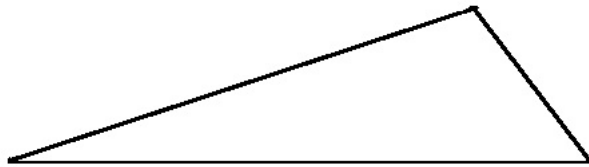
- (6) We know how to find the area of a triangle. Can you figure out the formula for the area of a triangle related to the area of the rectangle around it by using what you have learned from the last 5 questions?

- (7) You are given several triangles below. Fit each of the triangles into a rectangle and compute its area using centimeters.





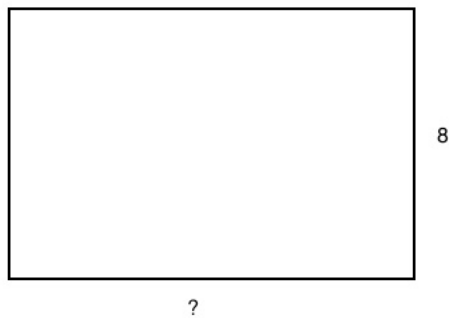
(c)



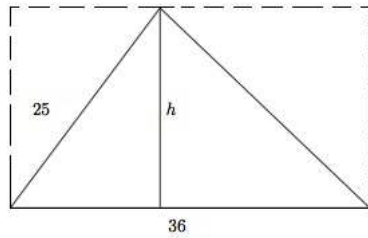
(d)

(8) Given the areas find the length of the missing side.

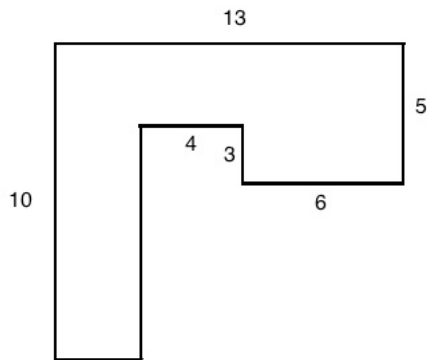
(a) The area of the rectangle is 72 square centimeters. What is the length of the missing side?



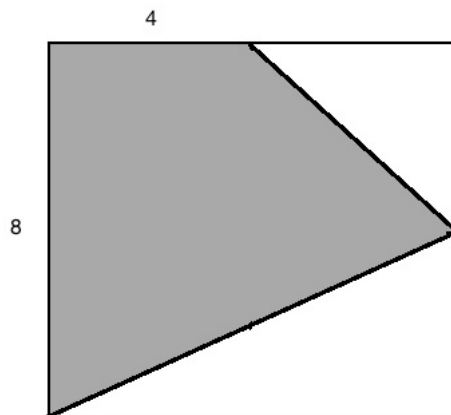
- (b) The area of this triangle is 450 square centimeters. What is the height,  $h$ , of the given triangle?



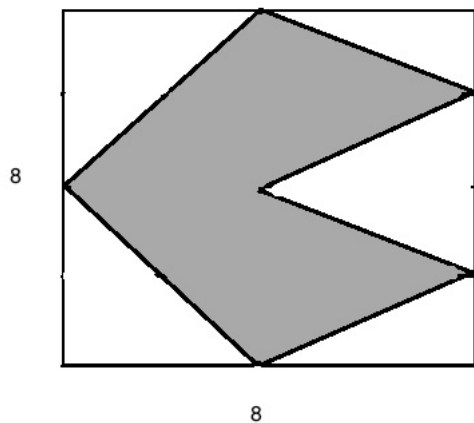
- (9) What is the area of the following shape (all angles are right angles)?



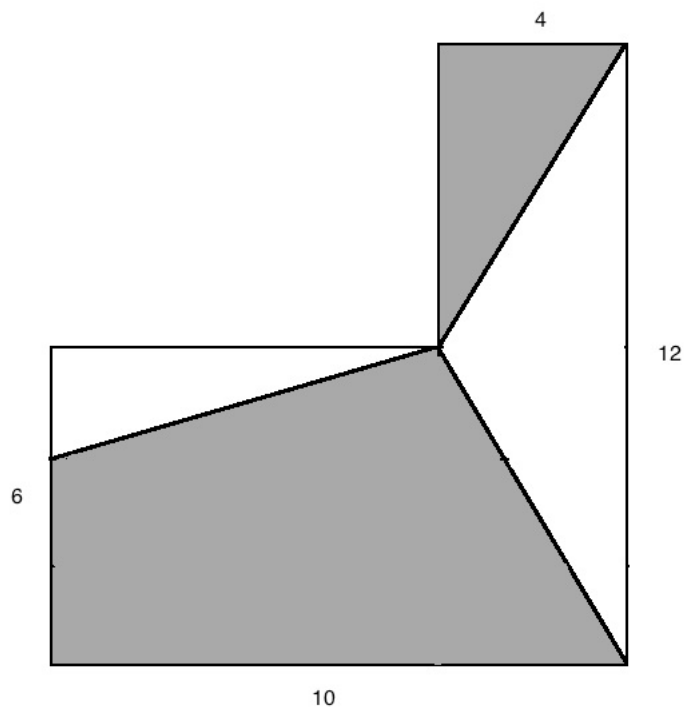
- (10) Given these awkward shapes, use what you have learned in this worksheet to find the area of the shaded region.



(a)



(b)



(c)