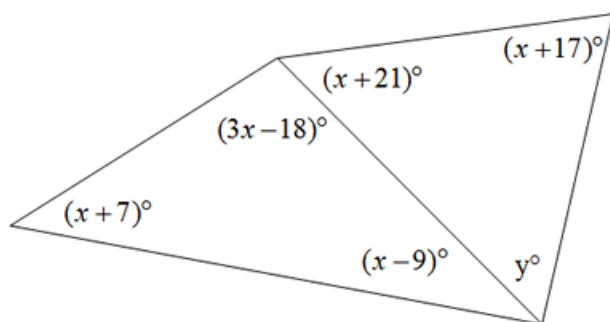


# Geometry 1 Practice Problems: Triangles

## Mackenzie Math Club

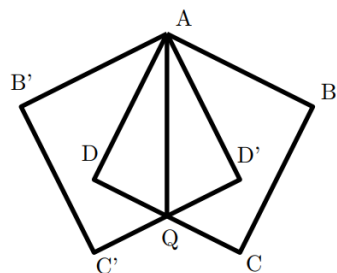
1.

Determine the values of the unknown variables.



2.

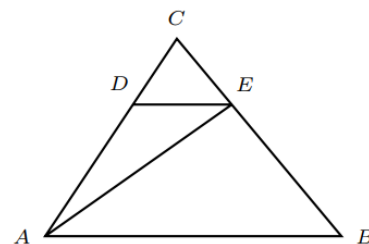
In the given figure,  $ABCD$  is a square with sides of length 4, and  $Q$  is the midpoint of  $CD$ .  $ABCD$  is reflected along the line  $AQ$  to give the square  $AB'C'D'$ . The two squares overlap in the quadrilateral  $ADQD'$ . Determine the area of quadrilateral  $ADQD'$ .



3.

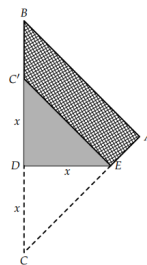
In the diagram sides  $AB$  and  $DE$  are parallel and  $DE : AB = 1 : 3$ . If the area of triangle  $CDE$  is 20, then the area of the triangle  $DEA$  is:

- |         |         |        |
|---------|---------|--------|
| (a) 20  | (b) 40  | (c) 80 |
| (d) 100 | (e) 120 |        |



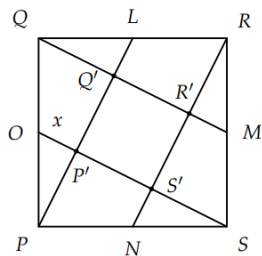
4.

An isosceles right triangle  $ABC$  with legs of length 2 cm is cut from a sheet of paper that is cross-hatched on one side and is solid gray on the other. The triangle is folded by moving the vertex  $C$  to position  $C'$  on side  $BC$ . If the cross-hatched area and the solid gray area are equal, determine the distance between  $B$  and  $C'$ .



5.

In the square  $PQRS$  shown in the figure, the points  $L$ ,  $M$ ,  $N$ , and  $O$  are the midpoints of the sides. A smaller square  $P'Q'R'S'$  is formed inside the larger square. The ratio of the area of square  $P'Q'R'S'$  to the area of square  $PQRS$  is:



6.

In the diagram  $ABC$  is a right triangle with  $\overline{AB} = 3$  and  $\overline{AC} = 4$ . Further, each line segment  $A_iB_i$  is perpendicular to  $AC$ ,  $A_1$  bisects  $AC$ , and  $A_{i+1}$  bisects  $A_iC$ . Find the total length of the sequence of diagonal segments

$$\overline{BA_1} + \overline{B_1A_2} + \overline{B_2A_3} + \cdots$$

