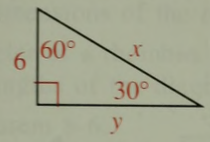
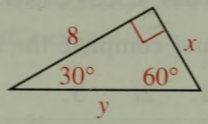
Example 2 Find the values of x and y.

a.



b.



Solution

a. hyp. = 2 · shorter leg

$x = 2 \cdot 6$

$x = 12$

longer leg = $\sqrt{3}$ · shorter leg

$y = 6\sqrt{3}$

b. longer leg = $\sqrt{3}$ · shorter leg

$8 = \sqrt{3} \cdot x$

$x = \dfrac{8}{\sqrt{3}} = \dfrac{8\sqrt{3}}{3}$

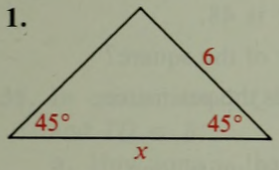
hyp. = 2 · shorter leg

$y = 2 \cdot \dfrac{8\sqrt{3}}{3} = \dfrac{16\sqrt{3}}{3}$

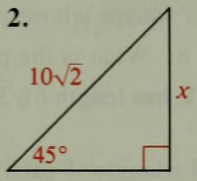
Classroom Exercises

Find the value of x.

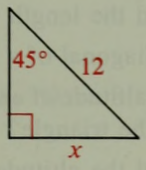
1.



2.



3.



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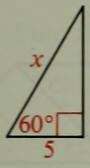
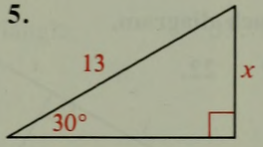
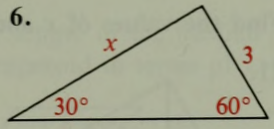


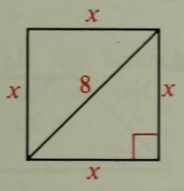
5.



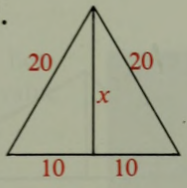
6.



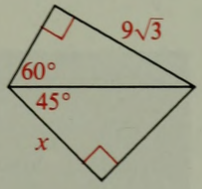
7.



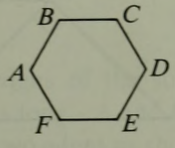
8.



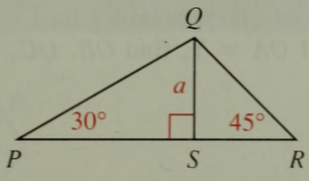
9.



10. In regular hexagon $ABCDEF$, $AB = 8$. Find AD and AC.



11. Express PQ, PS, and QR in terms of a.



12. If the measures of the angles of a triangle are in the ratio 1:2:3, are the lengths of the sides in the same ratio? Explain.