



Math on the Fly!

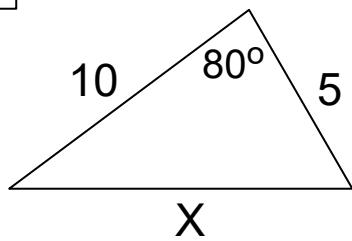
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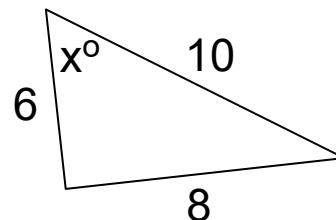
The Law of Cosines

Find the missing side or angle in each problem.

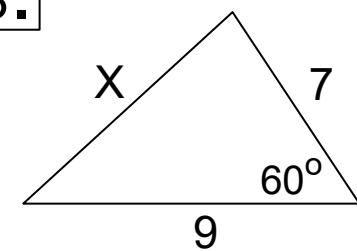
1.



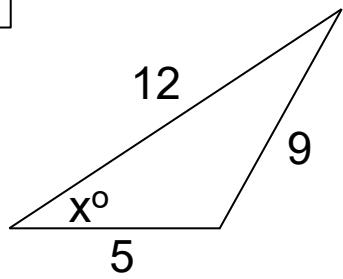
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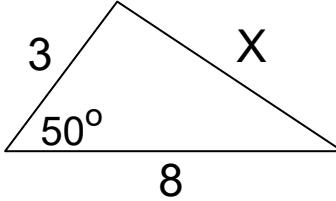
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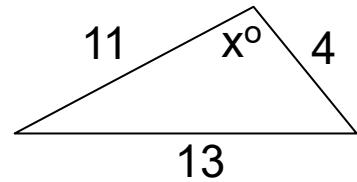
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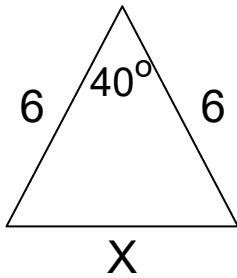
5.



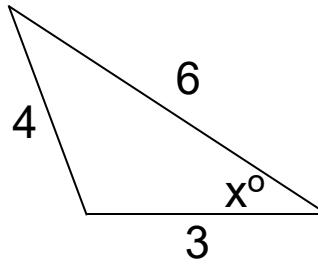
6.



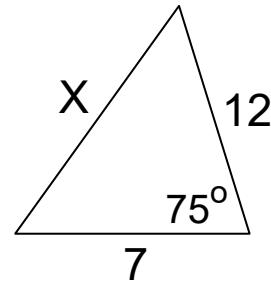
7.



8.



9.



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SOLUTIONS

1. $x = \sqrt{5^2 + 10^2 - 2(5)(10)\cos 80^\circ}$
 ≈ 10.37

2. $\angle x = \cos^{-1}\left(\frac{8^2 - 6^2 - 10^2}{-2(6)(10)}\right)$
 $\approx 53.1^\circ$

3. $x = \sqrt{7^2 + 9^2 - 2(7)(9)\cos 60^\circ}$
 ≈ 8.19

4. $\angle x = \cos^{-1}\left(\frac{9^2 - 5^2 - 12^2}{-2(5)(12)}\right)$
 $\approx 42.8^\circ$

5. $x = \sqrt{3^2 + 8^2 - 2(3)(8)\cos 50^\circ}$
 ≈ 6.49

6. $\angle x = \cos^{-1}\left(\frac{13^2 - 4^2 - 11^2}{-2(4)(11)}\right)$
 $\approx 111.3^\circ$

7. $x = \sqrt{6^2 + 6^2 - 2(6)(6)\cos 40^\circ}$
 ≈ 4.10

8. $\angle x = \cos^{-1}\left(\frac{4^2 - 3^2 - 6^2}{-2(3)(6)}\right)$
 $\approx 36.3^\circ$

9. $x = \sqrt{7^2 + 12^2 - 2(7)(12)\cos 75^\circ}$
 ≈ 12.23