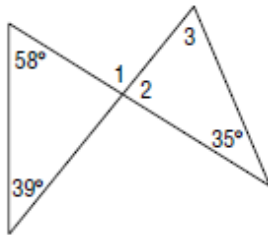
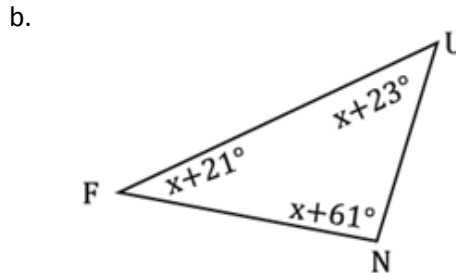
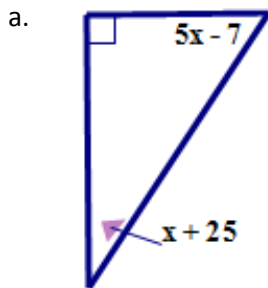


Complete each question and be sure to show all work!

1. $\triangle ABC$ has $m\angle C = 42^\circ$ and $m\angle A = 80^\circ$. Find $m\angle B$ and classify $\triangle ABC$ by its angle measures.
2. $\triangle ABC$ has $m\angle A = 44^\circ$ and $m\angle B = 46^\circ$. Find $m\angle C$ and classify $\triangle ABC$ by its angle measures.
3. A triangle has side lengths of 4 inches, 6 inches, and 8 inches. Classify the triangle by its side lengths.
4. One acute angle of a right triangle measures 37° . Find the measure of the other acute angle.
5. Using the diagram below, please find $m\angle 1$, $m\angle 2$ and $m\angle 3$.



6. Using the diagrams below, please solve for x .



7. In $\triangle ABC$, $m\angle A=(4x-3)^\circ$; $m\angle B=(3x+15)^\circ$; $m\angle C=(x+8)^\circ$. Please find the measure of each angle and classify $\triangle ABC$ by its angles. (Hint: Draw a picture. It may help.)

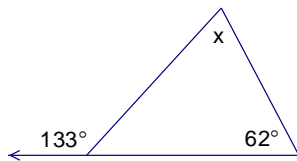
a) Please solve for x .

b) Please find the measure of each angle.

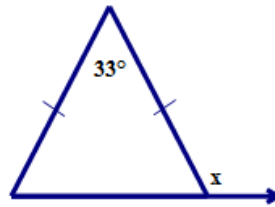
c) Please classify $\triangle ABC$ by its angles.

8. Using the diagrams below, please solve for x .

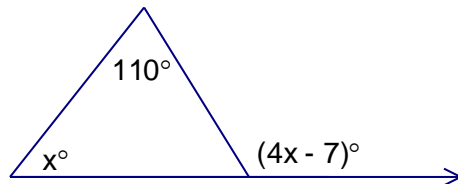
a.



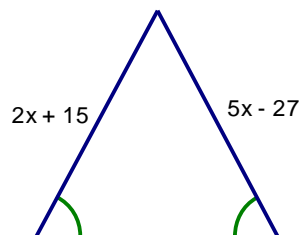
b.



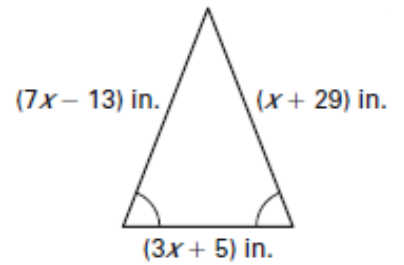
9. Using the diagram below, please find the measure of the exterior angle.



10. Using the diagram below, please find the value of x .



11. Using the diagram on the right, please find the length of the base.



12. a) Given the diagram shown below, what can you put in the diagram to represent $\angle A$?

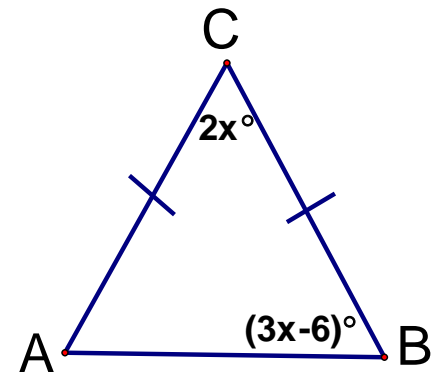
b) What theorem justifies your conclusion from part a)?

c) Please setup an equation and solve for x .

d) What theorem justifies the equation that you setup in part c)?

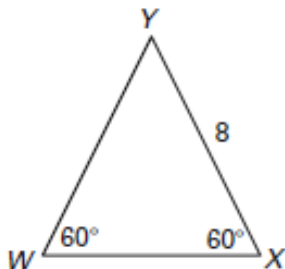
e) Please find the measures of the angles in $\triangle ABC$.

f) Please classify the triangle by its angles.



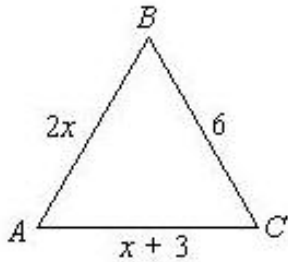
13. $\triangle LMN$ is isosceles, $\overline{LM} \cong \overline{LN}$, $LM = 3x - 2$, $LN = 2x + 1$, and $MN = 5x - 2$. Please find the value of x . (HINT: You may want to draw a picture!)

14. Using the diagram below, please find the length of \overline{WX} .

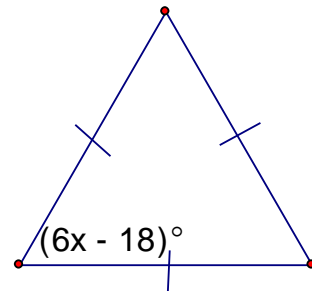


15. $\triangle FGH$ is equilateral with $FG = x + 5$, $GH = 3x - 9$, and $FH = 2x - 2$. Find the value of x . (HINT: You may want to draw a picture!)

16. Given that $\overline{AB} \cong \overline{BC}$, find the value of x and classify $\triangle ABC$ by its angles **and** its sides.



17. Given the diagram below, please find the value of x .



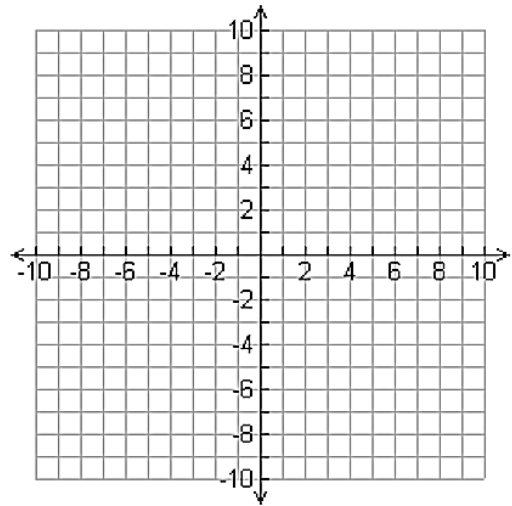
18. One angle of an equilateral triangle measures $(2x - 10)^\circ$. (HINT: You may want to draw a picture)

a) What is the value of x ?

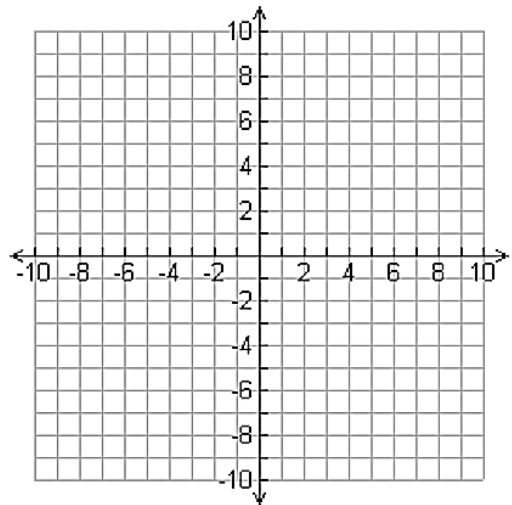
b) Explain how you were able to solve.

A triangle has the given vertices. Graph the triangle and classify it by its side lengths. Determine if the triangle is a right triangle.

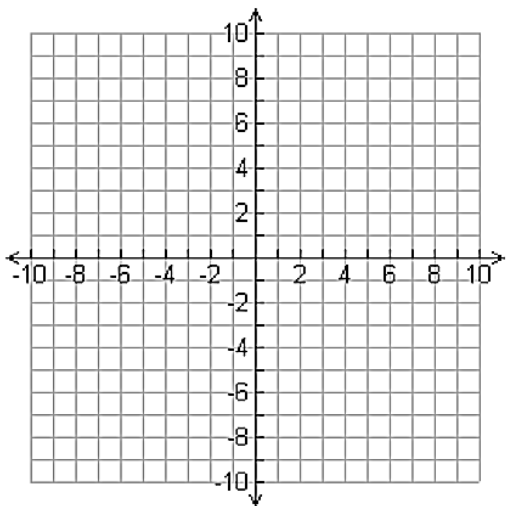
19. $A(-3, 3)$, $B(2, 8)$, $C(7, 3)$



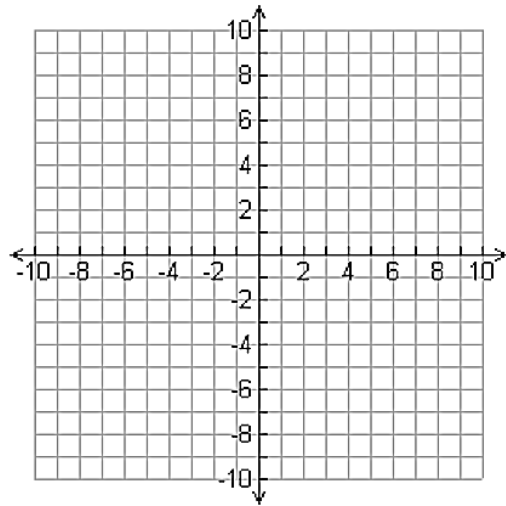
20. $D(1, 1)$, $E(4, 0)$, $F(8, 5)$



21. $G(1, -3)$, $H(2, -6)$, $I(-1, -5)$



22. $J(0, 0)$, $K(6, 0)$, $L(3, \sqrt{27})$



ANSWER KEY :

1. $m\angle B = 58^\circ$, acute triangle
2. $m\angle C = 90^\circ$, right triangle
3. Scalene triangle
4. 53
5. $m\angle 1 = 97^\circ$, $m\angle 2 = 83^\circ$, $m\angle 3 = 62^\circ$
6. a) 12 b) 25
7. a) 20 b) $m\angle A = 77^\circ$; $m\angle B = 75^\circ$; $m\angle C = 28^\circ$ c) acute
8. a) 71 b) 106.5
9. 149°
10. $x = 14$
11. 26 inches
12. a) $(3x - 6)^\circ$ b) Base Angles Theorem c) $x = 24$ d) Triangle Sum Theorem e) $66^\circ, 66^\circ, 48^\circ$ f) Acute
13. $x = 3$
14. $WX = 8$ units
15. $x = 7$
16. $x = 3$, equilateral/equiangular triangle
17. $x = 13$
18. a) 35, b) All angles in an equilateral triangle have the same measure
19. Isosceles, right triangle
20. Scalene, not a right triangle
21. Isosceles, not a right triangle
22. Equilateral, not a right triangle