# SchoolNova, Math 5b <br> Homework 16 <br> Triangles - Part I <br> March 10, 2019 

Please provide sufficient details about how you solved the problem. More difficult problems are marked with a *. If unable to solve a problem, please present your thoughts and any partial solution.

1. Classify the following triangles:

2. Segment $\overline{A B}$ is a leg of an isosceles right triangle. Find the coordinates of point $C$, and sketch $\triangle A B C$.

3. For $\triangle A B C$, prove the triangle sum theorem, that is, $m \angle 1+m \angle 2+m \angle 3=180^{\circ}$.

4. Find the measure of the numbered angles shown:

5. For $\triangle A B C$, prove the exterior angle theorem, that is, $m \angle 1=m \angle A+m \angle B$.

6. Find the measure of the exterior angles shown; utilize your expert algebra skills.

7. Naming Congruent Parts: In the following figure, identify all pairs of congruent angles and sides, and write the corresponding statements, for example, $\angle D \cong \angle R$ and $\overline{D E} \cong \overline{R S}$.

8. In the following figure, the small triangles $\triangle A D B, \triangle C D A$ and $\triangle C D B$ are congruent.

(a) Explain why $\triangle A B C$ is equilateral.
(b) Find $m \angle B D C$.
(c) Each of the small isosceles triangle has two congruent acute angles. Find $m \angle D B C$ and $m \angle D C B$.
9. The triangles with such measurements do not exist. Describe what is wrong with them?

