

Triangles

One to One Tutoring

May 10, 2010

1. In the isosceles triangle $\triangle ABC$, $\angle B = 50^\circ$. What could the other angles be?
2. The sum of two sides of an equilateral triangle is 15. What is the perimeter of the triangle?
3. Consider the square $\square ABCD$. Segments \overline{BD} and \overline{AC} cut the square into triangles. If the area of a triangle is 25, what is the perimeter of the square?
4. An isosceles right triangle has area 18. What is the length of its longest side?
5. Triangle $\triangle ABC$ has $\angle A = 15$ and $\angle C = 55$. The length of side \overline{BC} is 8 and the length of side \overline{AC} is 12. How big could side \overline{AB} be? How small could it be?
6. Starting a noon, Dave walks north at 4 miles/hour until 2pm and then stops. One hour after Dave started walking, Lindsay starts jogging west at 6 miles/hour until 4pm and then stops. How far apart are Dave and Lindsay at 3:30pm?
7. Consider an isosceles triangle, $\triangle ABC$, with $\angle A = \angle C$ and $\overline{AB} = 5$. If M is the midpoint of \overline{AC} , and $\overline{BM} = 4$, what is the area of $\triangle ABC$?

8. Consider triangle $\triangle ABC$. If $\angle A$ is twice $\angle B$, and $\angle C$ is the average of $\angle A$ and $\angle B$. What is the measure of $\angle A$?
9. Consider equilateral triangle $\triangle ABC$. Point D is placed on side \overline{AB} so that line segment \overline{CD} bisects $\angle C$. If the length of \overline{CD} is 4, what is the area of $\triangle ABC$?
10. Three dogs are arranged so that they are all the same distance from one another. A cat is standing in a place where it is the same distance from each of the dogs. If the cat is 10 meters from the first dog, how far apart are the second and third dogs?
11. Consider the following statement: *An isosceles right triangle has an angle that is half the size of another of its angles.* Is this statement always true, sometimes true, or never true?