Lab on General Triangles

1. Angle picture figure 1 (1 point)

Refer to lab page 2. If you can form a triangle, which angle matches the angle between the red line segment and the blue line segment?

a. The cyan angle
b. The green angle
c. The yellow angle
d. The given segments do not form a triangle.

2. Angle measure figure 1 (1 point)

Refer to lab page 2. The red line segment is of length 3, the blue segment is of length 6, and the magenta segment is of length 5. Calculate the measure of the angle of question 1 to the nearest degree.

3. Angle picture figure 2 (1 point)

Refer to lab page 3. If you can form a triangle, which angle matches the angle between the red line segment and the blue line segment?

a. The cyan angle
b. The green angle
c. The yellow angle
d. The given segments do not form a triangle.

4. Case type (1 point)

Refer to lab pages 2 and 3. What case of triangle solutions do the figures represent?

a. ASA b. ASS c. SAS d. SSS

5. Missing sides figure 3 (1 point)

Refer to lab page 4. Use the angles and line segment on the left as components of an ASA triangle. Which two line segments on the right do you have to use in order to complete the triangle?

a. red
b. cyan
c. magenta
d. blue

6. Calculate side figure 3 (0.5 point)

Refer to lab page 4. The yellow angle is 29.9^{o}, the green angle is 56.25^{o}, and the blue segments are of length 6. Calculate the length of the shortest side of the triangle to the nearest integer.

7. Missing sides figure 4 (1 point)

Refer to lab page 5. Which line segment on the right is the missing side of the triangle?

a. red
b. cyan
c. magenta
d. blue

8. Calculate length fig 4 (0.5 point)

Refer to lab page 5. The given sides are actually of lengths 4 and 7, and the angle is 44.42^{o}. Calculate the length of the missing side to the nearest integer.

9. Sides fig 5 (1 point)

Refer to lab page 6. If you put the long segment adjacent to the angle, there are two possibilities for the length of the third side. Position the components to find both possible lengths. Check two:

a. black b. yellow c. blue d. cyan e. green

10. Side fig 5 (0.5 point)

Refer to lab page 6. If you put the short segment adjacent to the angle, there is only one possibility for the length of the third side. Position the components to find that length. Check one:

a. black b. yellow c. blue d. cyan e. green

11. Calc angle fig 5 (0.5 point)

Refer to lab page 6. Suppose the given angle is 22.62^{o} and the given segments are of lengths 13 and 6.4. Calculate the measure of the largest angle, correct to the nearest degree.

12. Triangle inequality (1 point)

The "Triangle Inequality" says that the sum of the lengths of any two sides of a triangle is longer than the length of the third side. Suppose that the short sides of a triangle are of lengths a and b and the longest side is of length c. What condition on a, b, and c will guarantee that the triangle has an obtuse angle?

a. $a + b > c$ b. $a + b < c$ c. $a^2 + b^2 > c^2$

d. $a^2 + b^2 < c^2$ e. $a + b > 2c$ f. $a + b < 2c$