Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CC GEOMETRY TROICI

**STATION 1: PYTHAGOREAN THEOREM**

|  |  |
| --- | --- |
| 1. The end of a dog's leash is attached to the top of a 5-foot-tall fence post, as shown in the diagram below. The dog is 7 feet away from the base of the fence post.     How long is the leash, to the *nearest tenth of a foot*? | 1. Campsite *A* and campsite *B* are located directly opposite each other on the shores of Lake Omega, as shown in the diagram below. The two campsites form a right triangle with Sam’s position, *S*. The distance from campsite *B* to Sam’s position is 1,300 yards, and campsite *A* is 1,700 yards from his position.     What is the distance from campsite *A* to campsite *B*, to the *nearest yard*? |
| 1. The NuFone Communications Company must run a telephone line between two poles at opposite ends of a lake, as shown in the accompanying diagram. The length and width of the lake are 75 feet and 30 feet, respectively.     What is the distance between the two poles, to the *nearest foot*? | 1. An overhead view of a revolving door is shown in the accompanying diagram. Each panel is 1.5 meters wide.     What is the approximate width of *d*, the opening from *B* to *C*? |

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**STATION 2: ISOSCELES TRIANGLES**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. In the diagram of  below, . The measure of  is 40°.     What is the measure of ?   |  |  | | --- | --- | | 1) | 40° | | 2) | 50° | | 3) | 70° | | 4) | 100° | | 1. The accompanying diagram shows the roof of a house that is in the shape of an isosceles triangle. The vertex angle formed at the peak of the roof is 84°.     What is the measure of *x*?   |  |  | | --- | --- | | 1) | 138° | | 2) | 96° | | 3) | 84° | | 4) | 48° | |
| 1. Tina wants to sew a piece of fabric into a scarf in the shape of an isosceles triangle, as shown in the accompanying diagram.     What are the values of *x* and *y*?   |  |  | | --- | --- | | 1) |  | | 2) |  | | 3) |  | | 4) |  | | 1. In the diagram below of , , , and .     What is the value of *x*?   |  |  | | --- | --- | | 1) | 10 | | 2) | 28 | | 3) | 32 | | 4) | 40 | |

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**STATION 3: SIMILAR TRIANGLES**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Triangles *ABC* and *DEF* are drawn below.     If , , 6, , and , which statement is true?   |  |  | | --- | --- | | 1) |  | | 2) |  | | 3) |  | | 4) |  | | 1. The ratio of similarity of  to  is . If  and , then the length of  is  |  |  | | --- | --- | | 1) | 5 | | 2) | 7 | | 3) | 10 | | 4) | 20 | |
| 1. In the diagram below, .     If  and , which statement will justify similarity by SAS?   |  |  | | --- | --- | | 1) | , , and | | 2) | , , and | | 3) | , , and | | 4) | , , and | | 1. Using the information given below, which set of triangles can *not* be proven similar?  |  |  | | --- | --- | | 1) |  | | 2) |  | | 3) |  | | 4) |  | |

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**STATION 4: SIDE-SPLITTER THEOREM**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. The accompanying diagram shows two similar triangles.     Which proportion could be used to solve for *x*?   |  |  | | --- | --- | | 1) |  | | 2) |  | | 3) |  | | 4) |  | | 1. As shown in the diagram below, , , , , and .     What is the length of ?   |  |  | | --- | --- | | 1) | 28 | | 2) | 2 | | 3) | 14 | | 4) | 4 | |
| 1. In the diagram below of , .     If , , and , what is the length of ?   |  |  | | --- | --- | | 1) | 5 | | 2) | 14 | | 3) | 20 | | 4) | 26 | | 1. In the diagram of  below, , , , and .     What is the length of ?   |  |  | | --- | --- | | 1) | 12 | | 2) | 10 | | 3) | 8 | | 4) | 4 | |

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**STATION 5: EXTERIOR ANGLE THEOREM**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. In the diagram of  below, , , and  is extended through *N*.     What is the measure of ?   |  |  | | --- | --- | | 1) | 60º | | 2) | 120º | | 3) | 180º | | 4) | 300º | | 1. In the diagram below,  and  are shown with  and .     What is ?   |  |  | | --- | --- | | 1) | 125 | | 2) | 115 | | 3) | 65 | | 4) | 55 | |
| 1. In the diagram below of , side  is extended to point *D*, , , and .     What is ?   |  |  | | --- | --- | | 1) | 5 | | 2) | 20 | | 3) | 25 | | 4) | 55 | | 1. In the diagram of  below,  is extended to point *D*.     If , , , what is ?   |  |  | | --- | --- | | 1) | 13 | | 2) | 25 | | 3) | 53 | | 4) | 65 | |