Name:

Date:

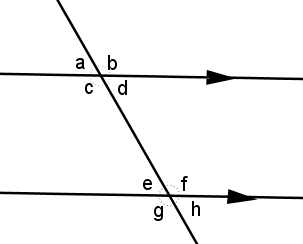
School:

Facilitator:

5.03 Transversals and Parallel Lines

Total Points: 58

**Use diagram below for problems 1-6:**

Describe the relationship of the pair of angles as

* alternate interior
* alternate exterior
* corresponding
* same side interior
* same side exterior.

Then, state whether the angles are congruent or supplementary.

1. a and e:      Congruent or supplementary?
2. d and e:

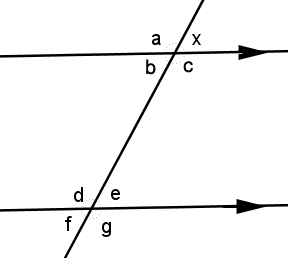
Congruent or supplementary?

1. b and h:      Congruent or supplementary?
2. c and e:      Congruent or supplementary?
3. d and h:      Congruent or supplementary?
4. b and g:      Congruent or supplementary?

**Find x for problems 7-11 below. Show your work for full credit.**

|  |  |
| --- | --- |
| **A transversal intersecting a pair of parallel lines •  The angle to the left of the transversal and at the bottom of the first line measures x. •  The angle to the right of the transversal and at the top of the second line measures 130 degrees.** | **A transversal intersecting a pair of parallel lines •  The angle to the left of the transversal and at the bottom of the second line measures 2x. •  The angle to the right of the transversal and at the top of the first line measures 150 degrees.** |
| **7) x =**      **o** | **8) x =**      **o** |
|  |  |
| **A transversal intersecting a pair of parallel lines •  The angle to the left of the transversal and at the top of the first line measures 4x. •  The angle to the left of the transversal and at the bottom of the first line measures 20 degrees.** | **A transversal intersecting a pair of parallel lines •  The angle to the right of the transversal and at the bottom of the first line measures 2x plus 20. •  The angle to the left of the transversal and at the top of the second line measures 110 degrees.** |
| **9) x =**      **o** | **10) x =**      **o** |
|  |  |
| **A transversal intersecting a pair of parallel lines •  The angle to the left of the transversal and at the top of the first line measures 3x. •  The angle to the right of the transversal and at the top of the second line measures 30 degrees.** |  |
| **11) x =**      **o** |  |

**Use diagram below to answer problems 12-18. Give your reasoning to each answer:**

**m∠x = 70o.**

12) Find m∠a:      o; reason:

13) Find m∠b:       o; reason:

14) Find m∠c:       o; reason:

15) Find m∠d:       o; reason:

16) Find m∠e:       o; reason:

17) Find m∠f:       o; reason:

18) Find m∠g:       o; reason:

Directions: Given a is parallel to b, t is a transversal of a and b. Prove angle 6 is congruent to angle 3 and angle 4 is congruent to angle 5. 

A figure of a 2 x 6 table. Column 1 is labeled statements and column 2 is labeled reasons.
• Statements: 1. a is parallel to b; 2. t is a transversal of a and b; 3. angle 7 is congruent to angle 3, angle 8 is congruent to angle 4; 4. Angle 6 is congruent to angle 7, angle 8 is congruent to angle 5; 5. Angle 6 is congruent to angle 3, angle 4 is congruent to angle 5
• Reasons; 1. Blank; 2. Blank; 3. Corresponding angles are congruent; 4. Blank; 5. Blank

A diagram of line t intersecting lines a and b
•  Line t forms vertical angles 5 and 8 and vertical angles 6 and 7 with the first line.
•  Line t forms vertical angles 2 and 4 and vertical angles 1 and 3 with the second line.



**19) Match the reasons with the statement for the following proof.**

**Choices:**

**A. Transitive property of   
 congruent angles  
 B. Given  
 C. Vertical angles are   
 congruent  
 D. Given**

**1.       
2.       
3. Corresponding angles are congruent**

**4.**

**5.**