Name _____ Date _____ Class _____

Problem Solving
Biconditional Statements and Definitions

Use the table for Exercises 1–4. Determine if a true biconditional statement can be written from each conditional. If so, then write a biconditional. If not, then explain why not.

Mountain Bike Races	Characteristics
Cross-country	A massed-start race. Riders must carry their own tools to make repairs.
Downhill	Riders start at intervals. The rider with the lowest time wins.
Freeride	Courses contain cliffs, drops, and ramps. Scoring depends on the style and the time.
Marathon	A massed-start race that covers more than 250 kilometers.

1. If a mountain bike race is mass-started, then it is a cross-country race.

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2. If a mountain bike race is downhill, then time is a factor in who wins.

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3. If a mountain bike race covers more than 250 kilometers, then it is a marathon race.

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4. If a race course contains cliffs, drops, and ramps, then it is not a marathon race.

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Choose the best answer.

5. The cat is the only species that can hold its tail vertically while it walks.

   A The converse of this statement is false.

   B The biconditional of this statement is false.

   C The biconditional of this statement is true.

   D This statement cannot be written as a biconditional.

6. Which conditional statement can be used to write a true biconditional?

   F If you travel 2 miles in 4 minutes, then distance is a function of time.

   G If the distance depends on the time, then distance is a function of time.

   H If y increases as x increases, then y is a function of x.

   J If y is not a function of x, then y does not increase as x increases.

 Holt Geometry