Name: _____ Date: _____

Fresh Math

Complete each proof using transformations.

Solve for x. Show your work.

1. A segment is rotated 90circ about t he origin, then translated 4 units rig ht. Does the length change?

2. An isosceles triangle has a line of symmetry through its vertex angle. If the base is 10, prove the two legs are equal.

3. A segment is rotated 180circ about the origin, then translated 5 units ri ght. Does the length change?

4. A segment is rotated 90circ about t he origin, then translated 5 units rig ht. Does the length change?

5. A segment is rotated 180circ about the origin, then translated 4 units ri ght. Does the length change?

6. Points A(3, 2) and B(8, 3) are reflected across the x-axis to A′ and B′. Prove AB = A′B′.

7. An isosceles triangle has a line of symmetry through its vertex angle. If the base is 6, prove the two legs are equal.

8. Points A(2, 1) and B(8, 1) are reflected across the x-axis to A′ and B′. Prove AB = A′B′.

Complete each proof using transformations. – Answer Key

1. A segment is rotated 90° about the origin, then translated 4 units right. Does the length change?

   No

2. An isosceles triangle has a line of symmetry through its vertex angle. If the base is 10, prove the two legs are equal.

   Legs are equal by reflection symmetry

3. A segment is rotated 180° about the origin, then translated 5 units right. Does the length change?

   No

4. A segment is rotated 90° about the origin, then translated 5 units right. Does the length change?

   No

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6. Points A(3, 2) and B(8, 3) are reflected across the x-axis to A′ and B′. Prove $AB = A'B'$.

7. An isosceles triangle has a line of symmetry through its vertex angle. If the base is 6, prove the two legs are equal.

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8. Points A(2, 1) and B(8, 1) are reflected across the x-axis to A′ and B′. Prove $AB = A'B'$.

 Equal by reflection property