Name _____ Date _____ Class _____

SKILL 87

Skills Readiness

Logical Reasoning

Certain types of statements, called conditionals, provide information about relationships between facts or events. You can often draw conclusions based on conditional statements.

Example: Draw a conclusion from the two true statements below.

If two lines are parallel, then they have equal slopes.
Line m is parallel to line n and the slope of line m is -2.

Conclusion: Since the two lines are parallel, they must have equal slopes.
So, the slope of line n is also -2.

Practice on Your Own

Draw a conclusion from each set of true statements.

1. If a polygon is a quadrilateral, then it has 4 sides.
Figure *ABCD* is a quadrilateral.

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2. If two angles are adjacent, then they share a common vertex.
Angle *ABC* and angle *CBD* are adjacent angles.

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3. If the sum of two angles is 180 degrees, then the angles are supplementary.
$\angle A$ has a measure of 70° and $\angle B$ has a measure of 110°.

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4. If a triangle is an isosceles triangle, then it has exactly two sides of equal length.
$\triangle DEF$ is an isosceles triangle with one side of length 8 and the other side of length 13.

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5. If the coordinates of a point are both negative, then the point lies in the third quadrant.
The coordinates of point *P* are $(-1, -9)$.

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Check

Draw a conclusion from each set of true statements.

6. If a triangle is equilateral, then it is equiangular.
Triangle *MNP* has sides of length 8, 8, and 8 and an angle with measure 60°.

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7. If an angle is obtuse, then its measure is greater than 90 degrees.
$\angle HJK$ is an obtuse angle.

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8. If the product of the slopes of two lines is -1, then the lines are perpendicular.
Line p has a slope of $\frac{2}{3}$ and line q has a slope of $-\frac{3}{2}$.

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