exactly the same. Proof shows that ∠2 and ∠4 are equal.
A proposition once proved is called a theorem (although sometimes
this word is used interchangeably with proposition).

30. Angles measured by degrees.
When two lines intersect each other, so the all four angles formed are
equal, we say the lines are perpendicular to each other (the symbol ⊥
is used to indicate perpendicularity) and the angles are called Right angles.
An angle smaller than a Right angle is said to be acute (sharp), while an
obtuse (blunt) angle is one which is greater than one Right angle but less
than two Right angles. For convenience of measuring, we divide the
Right angle into 90 equal angles, calling each part one degree. An acute
angle would, therefore, have fewer than 90 degrees (90°) and an obtuse
angle would lie between 90° and 180°. A straight angle, according to this
system of measurement, contains 180°.

31. Types of Proofs.
The type of proof given above, which advances directly from hypothesis
to conclusion, and therefore is called a synthetic proof. The word
"synthesis" implies a building up, putting the elements together to
form something more complex. Obviously complete proofs don't
occur to us as soon as the proposition is stated. The demonstration
of a geometric principle in its final form is a synthetic proof, but the
process which indicated where to start and what steps to take
was quite the opposite, it was a breaking down process, an
analysis. Briefly, an analytic proof starts with the conclusion
and examines the conditions which, if true, will verify the conclusion.
Suppose the conclusion is C. We examine it and discover that C is
true if B is true, but B is true if A is true and we know A to
be true because it depends on an axiom. Then we "synthetize" a
proof, beginning with A, advancing through B to C.
In cases where even after analysing a problem, it is difficult to
arrive at a suitable beginning for a direct proof, that is, one which
advances from hypothesis to conclusion in consecutive steps,
we frequently arrive at our conclusion indirectly by listing
all possible conclusions in the given case and eliminating all
but the desired one by showing that the others lead to
contradictions of established principles or of fundamental
assumptions. This is the type of reasoning a student uses in

perpendicularity
DEFINITION
Problem 9:
straight angle × 1/2
= Right angle (acute)
obtuse = blunt
90 degree

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