

Warm Up

1. Describe the pattern in the numbers and write the next three numbers in the pattern.

$+1 +2 +3 +4$
1, 2, 4, 7, 11, . . . 16 22 29

2. Find the complement and supplement of an angle that measures 80°

10° 100°

3. If $XY = YZ$, is Y the midpoint of \overline{XZ} ?
Make a sketch to show why or why not.

2-2 Conditional Statements

Conditional statement - if-then statement

if p then q

$p \rightarrow q$

Hypothesis -

if

p

Conclusion -

then

q

negation - opposite, not $\sim p$

converse - switch hyp. + conclusion
 $q \rightarrow p$

inverse - negate hyp. + conclusion
 $\sim p \rightarrow \sim q$

contrapositive - switch + negate hyp. + conclusion
 $\sim q \rightarrow \sim p$

biconditional - if and only if

Ex 1 Rewrite the conditional statement in if-then form

all whales are mammals

if an animal is a whale, then
 it is a mammal

three points are collinear if there is a line containing them

if there is a line containing
 3 points, then they are collinear

Ex 2 Write the if-then form, the converse, the inverse, and the contrapositive

Basketball players are athletes

if you are a b-ball player, then you
are an athlete

if you're an athlete, then you're a
basketball player

if you're not a b-ball player, then you're
not an athlete

if you're not an athlete, then you're not a
b-ball player

Ex 3 Write the if-then form, the converse, the inverse, and the contrapositive

Math teachers are great people.

if you're a math teacher, then
you're a great person

if you're a great person then you're
a math teacher

if you're not a math teacher, then
you're not a great person

if you're not a great person, then
you're not a math teacher

Ex. 4 Write a statement that is true whose converse is true.

if you're a math teacher, then you
teach math

Write a statement that is true whose converse is false.

if 2 \angle 's make a right \angle ,
then they are complementary

Ex. 5 Write a statement that is true whose inverse is true.

if an animal has hair, then it
is a mammal

Write a statement that is true whose inverse is false.

if you're a football player, then you're
strong

Ex. 6 Write a statement that is true whose contrapositive is true.

if 2 #'s are even, then
sum is even

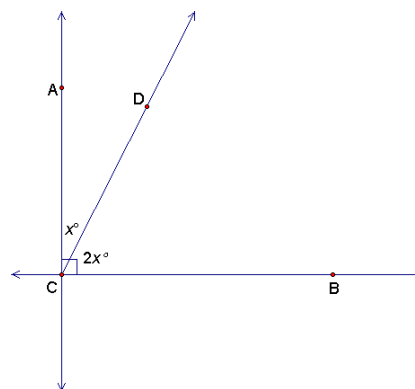
Write a statement that is true whose contrapositive is false.

Ex 7 Decide whether each statement is true. Explain your answer.

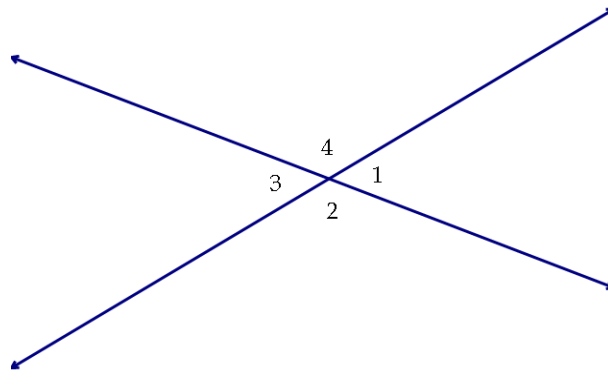
$$\overrightarrow{AC} \perp \overrightarrow{BC}$$

$\angle ACD$ and $\angle DCB$ are
complementary

\overrightarrow{CD} bisects $\angle ACB$



Ex. 8 Write a series of if-then statements that allow you to find the measure of each angle if $m\angle 2 = 115^\circ$



Ex 9 Write the definition of supplementary angles as a biconditional