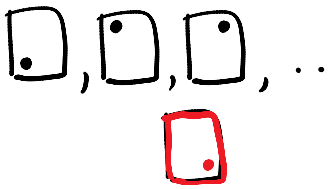
Chapter 2 Test Review

Find the next item in each pattern.

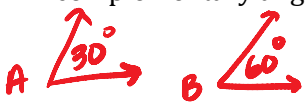
1) 

2) 405, 135, 45, 15, ...

5

3) Complete the conjecture "The sum of two even numbers is even."

4) Show that the conjecture "All complementary angles are adjacent" is false by finding a counterexample.

Ex: 

∠A and ∠B are comp, but not adjacent.

5) Identify the hypothesis and the conclusion of the conditional statement "The show is cancelled if it rains."

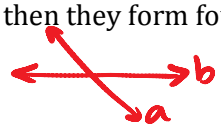
H: it rains
C: the show is cancelled

6) Write a conditional statement from the sentence "Parallel lines do not intersect."

If lines are parallel, then the do not intersect.

Determine if the conditional is true. If false, give a counterexample.

7) If two lines intersect, then they form four right angles.

False. 

lines a and b intersect, but do not form right ∠'s

8) If a number is divisible by 10, then it is divisible by 5.

True

Use the conditional "If you live in the United States, the you live in Kentucky" for items 9 - 11. Write the indicated type of statement and determine its truth value.

9) Converse: If you live in Kentucky, then you live in the US.

TRUE

10) Inverse: If you do NOT live in the US, then you do NOT live in Kentucky.

True

11) Contrapositive: If you do not live in Kentucky, then you do NOT live in the US.

False

12) Determine if the following conjecture is valid by the Law of Syllogism. If it is invalid, fix the conjecture.

Given: If it is colder than 50°F, then Tom wears a sweater. If Tom wears a sweater, then he is cold.

Conjecture: If Tom is cold, then it is colder than 50°F.

Invalid! Switch!

If it is colder than 50°F, then Tom is cold.

13) Use the Law of Syllogism to draw a conclusion from the given information.

Given: If a figure is a square, then it is a quadrilateral. If a figure is a quadrilateral, then it is a polygon. Figure ABCD is a square.

Conclusion: Figure ABCD is a polygon.

14) Write the conditional statement and converse within the biconditional "Chad will work on Saturday if and only if he gets paid overtime."

conditional: If Chad works on Saturday, then he will get paid overtime.

converse: If Chad gets paid overtime, then he will work Saturday.

15) Determine if the biconditional "B is the midpoint of $\overline{AC}$ iff $AB = BC$" is true. If false, give a ~~counterexample~~.

FALSE

conditional: If B is midpt of $\overline{AC}$, then $AB = BC$. True

converse: If $AB = BC$, then B is midpt of $\overline{AC}$ False

B is NOT midpt

Identify the property that justifies each statement.

16) If $2x = y$ and $y = 7$ then $2x = 7$.

Substitution

17) $m\angle DEF = m\angle DEF$

Reflexive

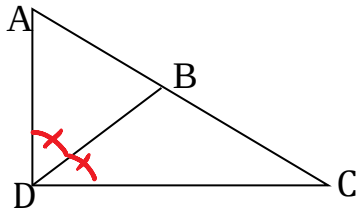
18) $\angle X \cong \angle P$, and $\angle P \cong \angle D$. So $\angle X \cong \angle D$.

Transitive

19) If $\overline{ST} \cong \overline{XY}$, then $\overline{XY} \cong \overline{ST}$.

Symmetric

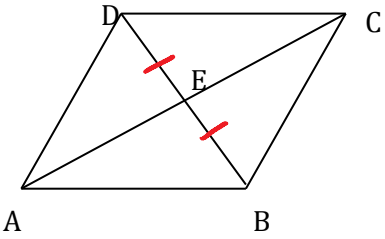
Drawing Conclusions



20) Given: $\overrightarrow{DB}$ bisects $\angle ADC$

Conclusion: $\measuredangle ADB \cong \measuredangle BDC$

Reason: If a ray bisects an $\measuredangle$, $\div$s it into 2 $\cong$ $\measuredangle$s



21) Given: E is the midpoint of $\overline{DB}$

Conclusion: $\overline{DE} \cong \overline{EB}$

Reason: If a pt. is midpt. of a segment, then it $\div$ the segment into 2 $\cong$ segments.

Writing Proofs

22) Given: $\angle 2$ is supplementary to $\angle 3$
$\angle 3$ is supplementary to $\angle 1$

Prove: $\angle 1 \cong \angle 2$

Statements	Reasons
① $\measuredangle 2$ supp to $\measuredangle 3$	① Given
② $\measuredangle 3$ supp to $\measuredangle 1$	② Given
③ $\measuredangle 1 \cong \measuredangle 2$	③ If two angles are supp. to the same $\measuredangle$, then they are $\cong$.

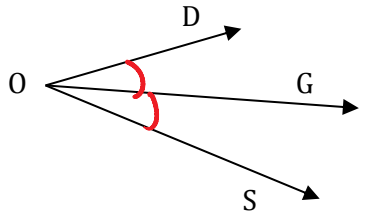
23) Given: $\overline{BA} \cong \overline{AT}$

Prove: A is the midpoint of $\overline{BT}$

Statements	Reasons
① $\overline{BA} \cong \overline{AT}$	① Given
② A is midpt. of $\overline{BT}$	② If a segment is $\div$ into 2 $\cong$ segments by a point, then the point is a midpoint.

24) Given: $\overrightarrow{OG}$ bisects $\angle DOS$

Prove: $\angle DOG \cong \angle GOS$



Statements	Reasons
1) $\overrightarrow{OG}$ bisects $\angle DOS$	1) Given
2) $\angle DOG \cong \angle GOS$	2) If a ray bisects an $\angle$, then it divides the $\angle$ into 2 $\cong$ $\angle$s.

25) Given: $\angle C$ and $\angle K$ form a linear pair

Prove: $\angle C$ and $\angle K$ are supplementary.

Statements	Reasons
1) $\angle C$ and $\angle K$ form a l.p.	1) Given
2) $\angle C$ & $\angle K$ are supp.	2) If 2 $\angle$s form a linear pair, then they are supplementary.

26) 26) Given: $\angle C$ and $\angle K$ are right angles.

$\angle C \cong \angle M$

Prove: $\angle M$ and $\angle K$ are right angles.

Statements	Reasons
1) $\angle C$ and $\angle K$ are right $\angle$s	1) Given
2) $\angle C \cong \angle M$	2) Given
3) $\angle M$ and $\angle K$ are right $\angle$s.	3) Substitution Property

You must also study notes, previous homework assignments, learning targets, and problems from the book!