In Exercises #1 & 2 , decide whether inductive reasoning or deductive reasoning is used to reach the conclusion. Explain your reasoning.

1. Each time your mom goes to the store, she buys milk. So, the next time your mom goes to the store, she will buy milk.

2. Rational numbers can be written as fractions. Irrational numbers cannot be written as fractions. So, $\frac{1}{2}$ is a rational number.

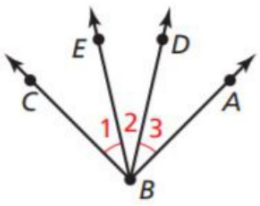
#3

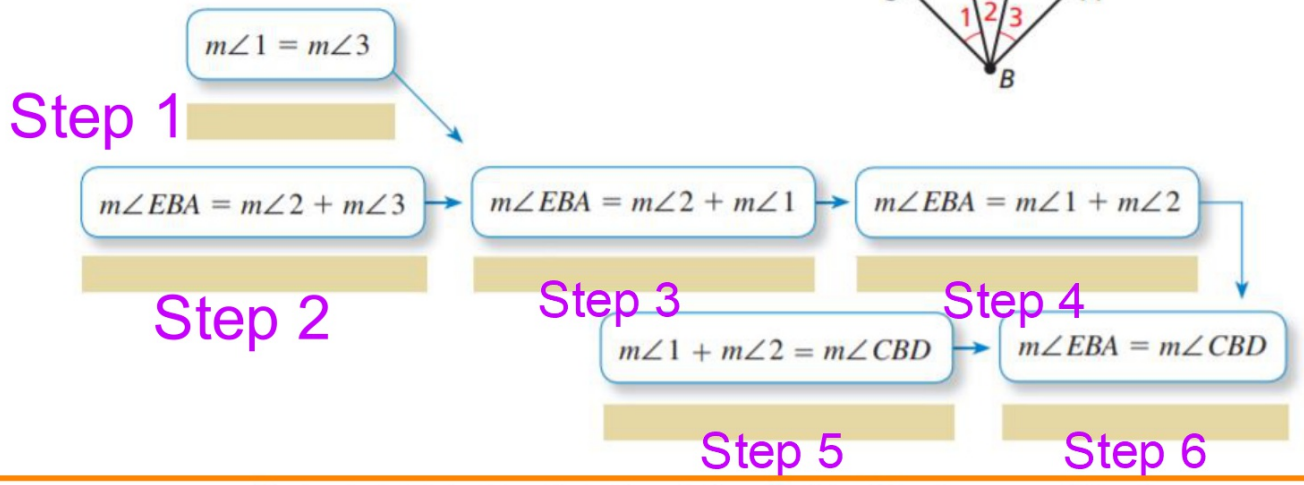
EXPLORATION 2 **Matching Reasons in a Flowchart Proof**

Work with a partner. Match each reason with the correct step in the flowchart.

Given $m\angle 1 = m\angle 3$

Prove $m\angle EBA = m\angle CBD$





A. Angle Addition Postulate (Post. 1.4)

B. Transitive Property of Equality

C. Substitution Property of Equality

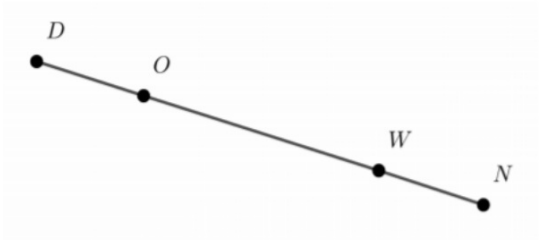
D. Angle Addition Postulate (Post. 1.4)

E. Given

F. Commutative Property of Addition

#4 Using the diagram, match the statements and reasons to write a two-column proof showing that $DO = WN$.

Given: $DW = ON$
Prove: $DO = WN$



Statements:

$DW = DO + OW$	$OW = OW$	$DW = ON$
$DO + DW = OW + WN$	$ON = OW + WN$	$DO = WN$

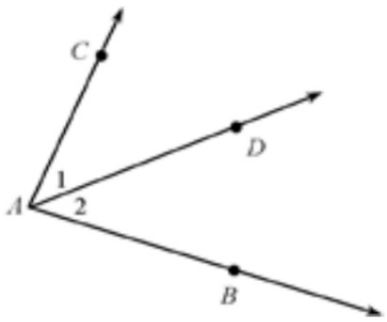
Reasons:

Segment Addition Postulate	Given	Segment Addition Postulate
Substitution Property	Addition Property of Equality	Reflexive Property

#5 *Complete the Proof Missing Steps

Given:
$m\angle 1 + m\angle 2 = 70°$
$m\angle 1 = 35°$

Prove:
$m\angle 2 = 35°$
$\overrightarrow{BD}$ is the angle bisector of $\angle ABC$



Statements	Reasons
1. $m\angle 1 + m\angle 2 = 70°$	1.
2. $m\angle 1 = 35°$	2. Given
3. $35° + m\angle 2 = 70°$	3.
4.	4. Subtraction Property of Equality
5. $\angle 1 \cong \angle 2$	5. Definition of Congruent Angles
6. $\overrightarrow{BD}$ is the angle bisector of $\angle ABC$	6.

#6 *Complete the Proof Missing Steps

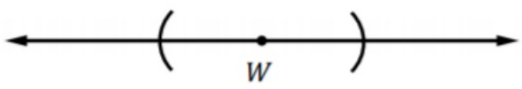
Given:
$AC = 6$ and $AB = 12$

Prove:
$CB = 6$ and C is the midpoint of $\overline{AB}$.

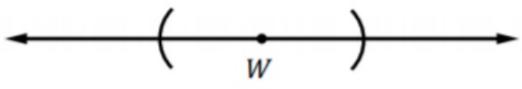
Statements	**Reasons**
1. $AC = 6$	1. Given
2.	2. Given
3. $AC + CB = AB$	3.
4. $6 + CB = 12$	4. Substitution Property of Equality
5. $CB = 6$	5.
6.	6. Definition of midpoint

#7 Determine the type of construction from the following steps.

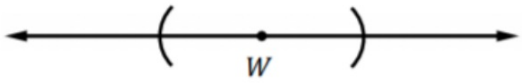
Step 1:



Step 2:



Step 3:



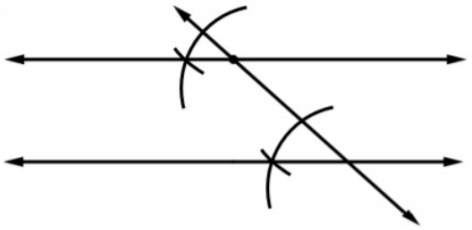
A Parallel
B Perpendicular
C Congruent
D Similar

#8 When constructing a line parallel to a given line, you will be:

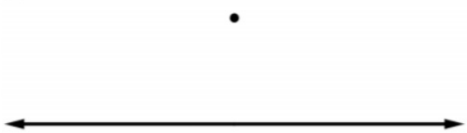
A Copying a segment.
B Bisecting a segment.
C Copying an angle.
D Constructing a perpendicular.

#9 The diagrams below model the steps for a parallel line construction.

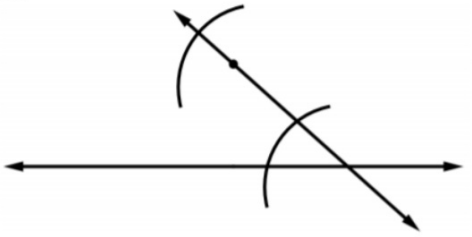
I.



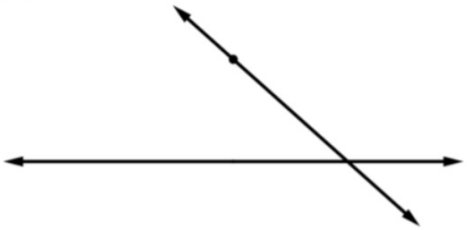
II.



III.



IV.



List the constructions in the correct order.

#10 Label the steps to construct a perpendicular bisector in the correct order below for line segment $\overline{MO}$.

_____ Draw large arcs both above and below the middle of $\overline{MO}$.

_____ Start with $\overline{MO}$.

_____ With your straightedge, connect the two points of where the arcs intersect.

_____ Without changing the width of the compass, place the compass on point O and draw two arcs so that they intersect the arcs previously drawn.

_____ Place your compass point on M, and stretch the compass more than halfway to point O.