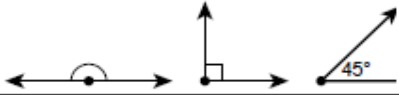
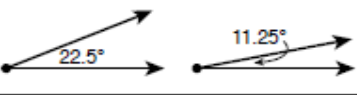


1-1A




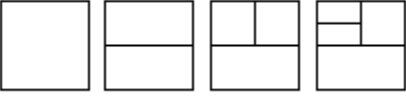
PRACTICE WORKSHEET – Patterns & Inductive Reasoning

When you make a general rule or conclusion based on a pattern, you are using **inductive reasoning**. A conclusion based on a pattern is called a **conjecture**.

Pattern	Conjecture	Next Two Items
-8, -3, 2, 7, ...	Each term is 5 more than the previous term.	$7 + 5 = 12$ $12 + 5 = 17$
	The measure of each angle is half the measure of the previous angle.	

You use **inductive reasoning** when you make conclusions based on patterns you observe. A **conjecture** describes a conclusion reached using inductive reasoning. A **counterexample** to a conjecture is an example for which the conjecture is incorrect.

Find the next item in each pattern.

	Sequence of items	Next item in pattern
1.	17, 23, 29, 35, 41, ...	
2.	2, -4, 8, -16, 32, ...	
3.	100, 81, 64, 49, ...	
4.	fall, winter, spring, ...	
5.		
6.		
7.		
8.		

1-1B

PRACTICE WORKSHEET - Patterns & Inductive Reasoning

VOCABULARY

A **conjecture** is an unproven statement that is based on observations.

Inductive reasoning is a process that involves looking for patterns and making conjectures.

A **counterexample** is an example that shows a conjecture is false.

Find a counterexample for each.

A counterexample can be a drawing, a statement, or a number.

1. If Susan is in school, then she is in math class.

Counterexample: _____

2. If you were born in New York, then you live in New York.

Counterexample: _____

3. If the car will not start, then it is out of gas.

Counterexample: _____

4. If the basketball team has scored 100 points, then they must be winning

Counterexample: _____

5. *All figures with 4 sides are squares!*

Counterexample: _____

Write the letter for the correct answer in the blank

6. _____ Choose the numbers that are counterexamples for the following statement.
If two odd numbers are added, then the sum is also an odd number.

A 3, 8 **B** 4, 6 **C** 1, 7 **D** 2, - 1

7. _____ Which numbers are *not* counterexamples for the following statement?
For any numbers a and b , $a \div b = a - b$.

A $a = 8, b = 4$ **B** $a = 10, b = 5$ **C** $a = 6, b = 3$ **D** $a = 4, b = 2$

8. _____ Which number is a counterexample for the following statement?
For all numbers a , $2a + 5 < 17$.

A $a = 6$ **B** $a = 0$ **C** $a = 5$ **D** $a = 1$