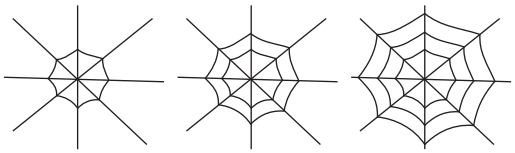
Name _____ Date _____

2.2 Practice B

In Exercises 1 and 2, describe the pattern. Then write or draw the next two numbers, letters, or figures.

1. A, 26, B, 25, C, 24, …

2. 

In Exercises 3 and 4, make and test a conjecture about the given quantity.

3. the sum of two absolute values

4. the product of a number and its square

5. Vertical angles are always complementary. Find a counterexample to show that the conjecture is false.

In Exercises 6 and 7, use the Law of Detachment to determine what you can conclude from the given information, if possible.

6. If you eat a healthy breakfast, then you will not be hungry until lunchtime. You are not hungry until lunchtime.

7. Adjacent angles share one common ray. $\angle AOB$ and $\angle DOB$ are adjacent angles.

In Exercises 8 and 9, use the Law of Syllogism to write a new conditional statement that follows from the pair of true statements, if possible.

8. If a polygon has three sides, then it is a triangle. If triangle has two congruent sides, then it is an isosceles triangle.

9. If it is Tuesday, then you mow the grass. If you mow the grass, then you water the flowers.

In Exercises 10 and 11, decide whether inductive reasoning or deductive reasoning is used to reach the conclusion. Explain your reasoning.

10. All mammals have hair. Cats are mammals. So, all cats have hair.

11. Each time you go to school you walk. You went to school today, so you walked.

12. Is it possible to have a series of true conditional statements that lead to a false conclusion? Explain.

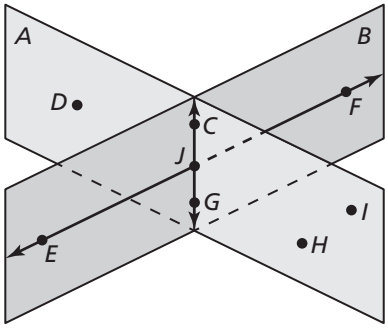
13. The table shows the cost per pound of several varieties of organic and nonorganic produce at your local grocery store. What conjecture can you make about the relation between the cost of organic produce and the cost of nonorganic produce? Explain your reasoning.

	Organic	**Nonorganic**
Bananas	\$0.49	\$0.29
Carrots	\$1.19	\$0.89
Strawberries	\$3.99	\$2.99

Name_____ Date_____

2.3 Practice B

In Exercises 1–6, use the diagram to write an example of the postulate.

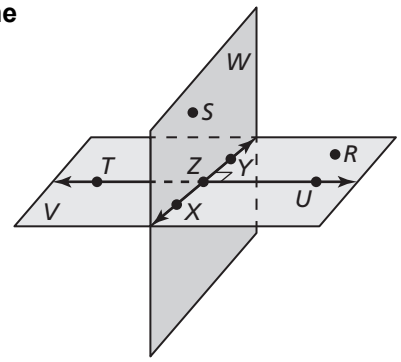


1. Two Point Postulate (Postulate 2.1)
2. Line-Point Postulate (Postulate 2.2)
3. Line Intersection Postulate (Postulate 2.3)
4. Three Point Postulate (Postulate 2.4)
5. Plane-Line Postulate (Postulate 2.6)
6. Plane Intersection Postulate (Postulate 2.7)

In Exercises 7 and 8, sketch a diagram of the description.

7. $\overleftrightarrow{AB}$, $\overleftrightarrow{CD}$, and $\overleftrightarrow{BD}$ that intersect at exactly two points
8. planes S and T intersecting at a right angle, $\overline{AB}$ on plane S and plane T, and point C is the midpoint of $\overline{AB}$

In Exercises 9–12, use the diagram to determine whether you can assume the statement.



9. Planes W and V intersect at $\overleftrightarrow{TU}$.
10. Points T, U, and R are coplanar.
11. $\angle TZX$ and $\angle UZY$ are vertical angles.
12. $\overleftrightarrow{TU}$ lies in plane W.
13. The Plane Intersection Postulate (Postulate 2.7) is written in if-then form. Write the converse, inverse, and contrapositive and state which ones are true.
14. Is it possible for three planes to intersect along the same line? Explain your reasoning.
15. Your friend claims that if the Plane-Line Postulate (Postulate 2.6) is true, then all lines that pass through a point in a plane must also be in that same plane. Is your friend correct? Explain your reasoning.
16. $\overline{AB}$ and $\overline{CD}$ lie in plane Z. If $\overleftrightarrow{EF}$ bisects either $\overline{AB}$ or $\overline{CD}$, does $\overleftrightarrow{EF}$ lie in plane Z? If $\overleftrightarrow{EF}$ bisects both $\overline{AB}$ and $\overline{CD}$, does $\overleftrightarrow{EF}$ lie in plane Z? Explain your reasoning.