Unit 2 Study Guide/Review **Name: _____**

1. Sketch two intersecting planes. Label the planes V and G. Name the intersection of plane V and plane G. What did you name it in the diagram?

2. Add 3 coplanar points to the diagram above. Label them A, B, and C.

3. Sketch a line in one of the planes which intersects the other plane at point D.

4. Sketch a pair of opposite rays in plane G. Labeling points as necessary, what are the names of the rays?

5. Sketch 3 points which are collinear. Label them in the diagram and name them here.

6. Draw 3 points which are NOT collinear. Label them in the diagram and name them here.

Use the diagram at the right to answer the questions below.

7. Give two other names for $\overleftrightarrow{AB}$.

8. Name three points that are collinear.

9. Give another name for plane F.

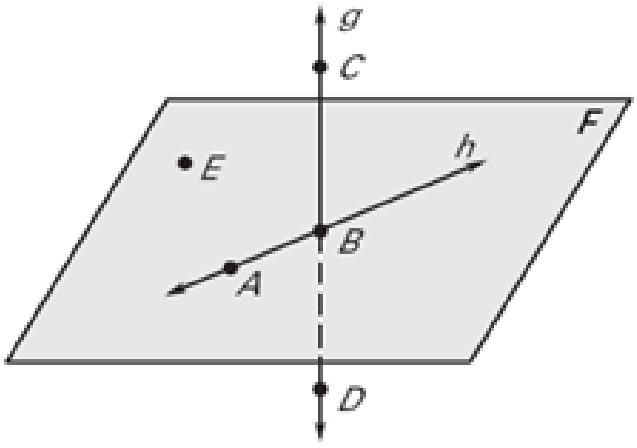
10. Name a point that is not coplanar with A, B, and C.

11. Give another name for $\overline{CD}$.

12. Name three rays with endpoint B.

13. Name a pair of opposite rays.

14. Give another name for $\overrightarrow{CD}$.



For Venn Diagrams, know:

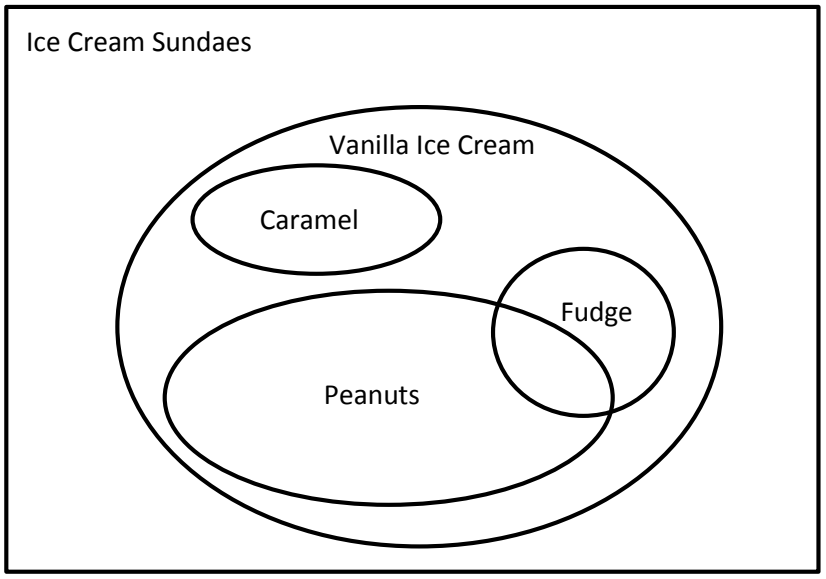
- How to draw a Venn Diagram from a description.
- How to describe a Venn Diagram using the words all, some, or no.

Fill in the blank with **all, some** or **no**, using the diagram at the right.

15. _____ sundaes had vanilla ice cream.

16. _____ sundaes with fudge had caramel.

17. _____ sundaes with peanuts had fudge.



For conditional statements, know:

- How to write a conditional statement in if-then form.
- How to negate a statement.
- How to identify the hypothesis and the conclusion of a conditional statement.
- How to create the inverse, converse, and contrapositive of a conditional statement.
- How to identify and write a bi-conditional statement.
- How to use logical symbols (if p , then q , ~)

For deductive reasoning, know:

- How to use and apply the Law of Detachment.
- How to use and apply the Law of Syllogism.

Write each statement in if-then form.

18. All students at Hermitage take an English class.

19. All right angles measure 90°.

20. Every dog has four legs.

Write the converse, inverse, and contrapositive of the given conditional statement.

If it is Saturday, then school is closed.

21. Converse: _____

    _____.

22. Inverse: _____

    _____.

23. Contrapositive: _____

    _____.

Show that each conditional is false by finding a counterexample.

24. If it is 12:00 noon, then the sun is shining. _____

25. If a number is divisible by 3, then it is odd. _____

Choose 2 statements from the 3 below, one of which has a true converse and one of which has a false converse. Write a biconditional for the statement with a true converse. Write a counterexample for the statement with a false converse.

26. If the sun is shining, then it is 12:00 noon. _____

    _____.

27. If the number is divisible by 3, then the number is odd. _____

    _____.

28. If an angle is 90°, then it is a right angle. _____

    _____.

Write each definition as a biconditional.

29. As isosceles triangle has at least two congruent sides. _____

    _____.

30. A cube is a three-dimensional solid with six square faces. _____

    _____.

Write each sentence in symbolic form, using the given symbols.

p: The test is easy ***q: Sam studies*** ***r: Sam passes the test***

31. If the test is easy, then Sam will pass the test. _____

32. Sam will pass the test if and only if he studies. _____

33. If the test is not easy, then Sam will pass the test. _____

34. The test is easy if Sam studies. _____

35. Sam will not pass the test if Sam doesn't study. _____

36. Sam passes the test if the test is easy. _____

In the problems below, symbols are assigned to represent statements.

Let j represent "I jog."
Let d represent "I diet."
Let g represent "I feel well."
Let h represent "I get hungry."

For each statement in symbolic form, write out the conditional statement.

37. $j \rightarrow g$:_____

38. $\sim g \rightarrow j$:_____

39. $\sim d \rightarrow \sim h$:_____

Write a valid conclusion for the following sets of statements. Then give a reason (Law of Syllogism or Detachment). If no valid conclusion exists, write "None."

40. If I eat pretzels, then I get thirsty. I eat pretzels.

Therefore,_____

41. If I run, then I get tired. If I go to school, then I walk.

Therefore,_____

42. If the moon is full, then the wolves come out. The wolves came out.

Therefore,_____

43. If I learn math, then I will feel successful. If I feel successful, then I throw a party.

Therefore,_____