

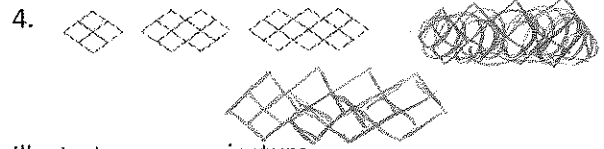
Name: Key

Make a conjecture about the next term in each sequence.

1. -4, -1, 2, 5, 8, 11 *add 3*

2. 6, 11/2, 5, 9/2, 4, 7/2, 5/2 *x-1/2*

3. -2, 4, -8, 16, -32, 64 *mult. by -2*



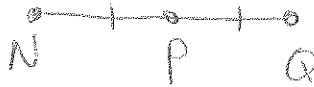
Make a conjecture based on the given information. Draw a figure to illustrate your conjecture.

5. Points A, B and C are collinear, and D is between B and C.
conj: D is also collinear

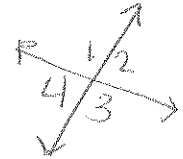


6. Point P is the midpoint of segment NQ.

$NP \cong PQ$



7. $\angle 1, \angle 2, \angle 3$ and $\angle 4$ form four linear pairs.
all 4 angles add up to 360°



8. $\angle 3 \cong \angle 4$
they have the same measure



Determine whether each conjecture is true or false. Give a counterexample for any false conjecture.

9. Given: $\angle ABC$ and $\angle CBD$ form a linear pair.
Conjecture: $\angle ABC \cong \angle CBD$ *false* $\angle ABC = 70$ $\angle CBD = 110$

10. Given: Segments AB, BC, and AC are congruent.
Conjecture: A, B and C are collinear. *false, they may form a triangle*

11. Given: $AB + BC = AC$.
Conjecture: $AB = BC$. *false*



12. Given: $\angle 1$ is complementary to $\angle 2$, and $\angle 1$ is complementary to $\angle 3$.
Conjecture: $\angle 2 \cong \angle 3$. *true*

13. A group of 400 Dakota students were asked what type of music they listened to. They could choose among rap, country and pop. The results are shown in the Venn diagram.

a. How many students listen to none of these types of music?

42

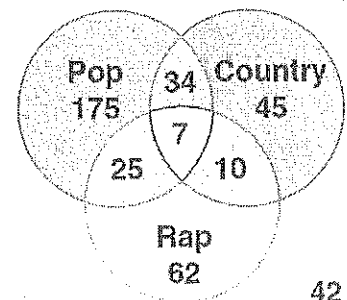
b. How many students listen to all 3 of these types?

7

c. How many students listen to only pop and rap? 25 *each*

d. How many students listen to pop, or rap, or country?

$400 - 42 = 358$



Complete each truth table.

14.

p	q	$\sim p$	$\sim p \wedge q$	$\sim(\sim p \wedge q)$
T	T	F	F	T
T	F	F	F	T
F	T	T	T	F
F	F	T	F	T

15.

p	q	$\sim p$	$\sim p \vee q$	$p \wedge (\sim p \vee q)$
T	T	F	T	T
T	F	F	F	F
F	T	T	T	F
F	F	T	T	F

Identify the hypothesis and conclusion of each statement.

16. If the drama class raises \$2000, then they will go on tour.

hypothesis conclusion

17. If every freshman goes to float building, then the freshman class float will win the competition.

hypothesis conclusion

Write each statement in if-then form.

18. A polygon with four sides is a quadrilateral.

If a polygon has 4 sides, then it is a quadrilateral.

19. An acute angle has a measure less than 90 degrees.

If an angle is acute, then it has a measure less than 90° .

Determine the truth value of the following statement for each set of conditions.

If you finish your homework by 5 p.m., then you go out to dinner.

20. You finish your homework by 5 p.m. and you go out to dinner. True
 21. You finish your homework by 4 p.m. and you go out to dinner. True
 22. You finish your homework by 5 p.m. and you do not go out to dinner. False

Write the converse, inverse and contrapositive of each conditional statement. Tell which statements are true and which statements are false.

23. If a polygon is a rectangle, then it is a square. False

Converse:

If a polygon is a square, then it's a rectangle. True

Inverse:

If a polygon is not a rectangle, then it's not a square. True

Contrapositive:

If a polygon is not a square, then it's not a rectangle. False

24. If two angles are complementary, then the sum of their measures is 90 degrees. True

Converse:

If 2 angles have a sum of 90, then they are complementary. True

Inverse:

If 2 angles are not complementary, then they do not have a sum of 90. True

Contrapositive:

If 2 angles do not have a sum of 90, then they are not complementary. True

Determine whether the following statements are always, sometimes, or never true. Explain your reasoning.

25. Three collinear points determine a plane.

never, you need 3 non collinear points

26. Two points A and B determine a line.

always, you need 2 points for a line

27. A plane contains at least three lines.

always, you need 3 non collinear points which makes 3 lines.

28. The intersection of two planes contains at least two points.

always, the intersection is a line

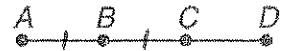
29. If three planes have a point in common, then they have a whole line in common.

sometimes, they may have just that one point

30. In the figure, point B is the midpoint of segment AC and point C is the midpoint of segment BD.

Write a paragraph proof to prove that $AB = CD$.

Since B is a m.p. $AB = BC$



and since C is a m.p. $BC = CD$.

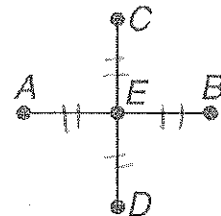
Since BC is equal to both AB & CD,

they must be the same size. so $AB = CD$.

31. In the figure, E is the midpoint of segment AB and CD, and $AB = CD$.

Write a paragraph proof to prove that $AE = ED$.

Since E cuts AB & CD in half



and they were the same length to start. Their halves must be the same length so $AE = ED$

