

Geometry Honors Unit 1 Test Review

Day 07

Name Master E
Date _____ Block _____

1-3: Make a conjecture based on the pattern observed. Then determine the next two terms in the pattern.

1. -3, 6, -12, 24, -48

Conjecture: Multiply by -2 Next two terms: 96, -192

2. 11:30 AM, 12:00 PM, 12:30 PM, 1:00 PM

Conjecture: Every 30 minutes Next two terms: 1:30^{PM}, 2:00^{PM}



Conjecture: Add another circle Next two terms:

4-9: Write the conclusion of each statement using the law of detachment or the law of syllogism or state invalid if no conclusion can be made.

4. If Tom does his homework, he will understand proofs. $p \rightarrow q$
Tom did his homework last night! p
Conclusion: Tom understands proofs Law: Detachment

5. If John goes camping, then Lou will go. $p \rightarrow q$
If Lou goes, then Cindy will go. $q \rightarrow r$
John went camping! $\therefore p \rightarrow r$
Conclusion: Cindy's going camping Law: Syllogism
b/c if John goes camping, then Cindy will go.

6. If it is Sunday, then there is no school. $p \rightarrow q$
There is no school. q
Conclusion: $p \rightarrow q \dots q$ (out of order) Law: Invalid
There could be Sunday school at church!

7. If a number is a whole number, then it is an integer. $p \rightarrow q$
If a number is an integer, then it is a rational number. $q \rightarrow r$
Conclusion: If a number is a whole number, then it is a rational number Law: Syllogism

8. If I am sick on Wednesday, then I may stay home from school. $p \rightarrow q$
I was sick on Wednesday. p
Conclusion: I may stay home from school Law: Detachment

9. If an animal is a fish, then it can swim. $p \rightarrow q$
Rufus can swim. q
Conclusion: Rufus could be a person Law: Invalid
ex.

10-12: Is the following conditional statement true? If true, write its converse. If the converse is true, then write the statement in biconditional form.

10. If $x > 0$, then x is positive. T F

11. Converse: If x is positive, then $x > 0$. T F

12. Biconditional: $x > 0$ if and only if x is positive.

13-18: Use the given statement to answer each. Given: Mrs. Edwards will be happy if I do well on this test!

13. Rewrite it in if-then form. If I do well on the test, then Mrs. Edwards will be happy

14. State the hypothesis. I do well on the test

15. State the conclusion. Mrs. Edwards will be happy

16. State the converse. If Mrs. Edwards is happy, then I did well on the test.

17. State the inverse. If I don't do well on the test, then Mrs. Edwards won't be happy.

18. State the contrapositive. If Mrs. Edwards isn't happy, then I didn't do well on the test.

19-22: Write the symbolic statement in words given p and q . p : $\angle C$ is an acute angle. q : $m\angle C$ is 30° .

Converse 19. $q \rightarrow p$ If $m\angle C$ is 30° , then $\angle C$ is an acute angle.

Contra + 20. $\sim q \rightarrow \sim p$ If $m\angle C$ is not 30° , then $\angle C$ is not an acute angle.

21. $\sim p$ $\angle C$ is not an acute angle

Inverse 22. $\sim p \rightarrow \sim q$ If $\angle C$ is not an acute angle, then $m\angle C$ is not 30° .

23-31: Justify each statement with an algebraic property of equality

23. If $x+7=11$, then $x=4$

Subtraction POE

24. $z-5=z-5$

Reflexive POE

25. If $5y = -20$, then $y = -4$.

Division POE

26. $2(a+b) = 2a + 2b$

Distributive POE

27. If $2x + \boxed{y} = 70$, and $\boxed{y} = 3x$, then $2x + \boxed{3x} = 70$.

Substitution POE

28. If $3 = x$, then $x = 3$

Symmetric POE

29. If $2z - 5 = -3$, then $2z = 2$.

Addition POE

30. If $a = b$ and $b = c$, then $a = c$.

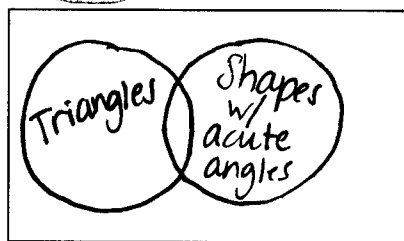
Transitive POE

31. If $\frac{x}{3} = 2$, then $x = 6$

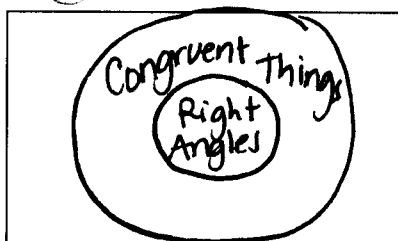
Multiplication POE

32-34: Construct a Venn diagram illustrating the following statements.

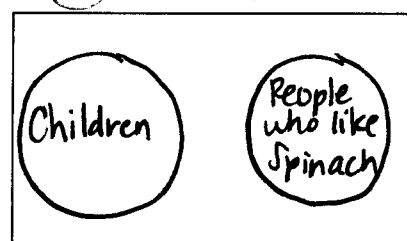
32. Some triangles have acute angles.



33. All right angles are congruent.



34. No child likes spinach.



35-37: One hundred people were asked what kind of literature they liked to read. They could choose among novels, poetry, and plays. Answer the questions based on the results in the Venn diagram shown.

35. How many people said they like all three types of literature?

7

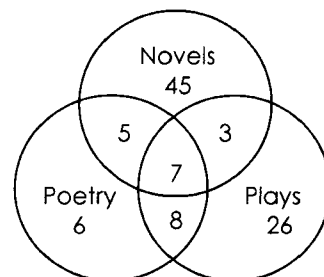
36. How many people like to read poetry?

26

$$6 + 5 + 7 + 8$$

37. How many people like novels and plays, but not poetry?

3



38-40: Use p, q, and r to write a compound statement for each conjunction and disjunction. Then circle the truth value.

p: $-1 + 4 = 3$ T

q: All right angles are congruent T

r: All acute angles are greater than 90° F

38. $p \vee r$

$-1 + 4 = 3$ and all acute angles are greater than 90°

True or False? T + F

39. $q \wedge \sim r$

All right angles are congruent and all acute angles are not greater than 90° .

True or False? T + T

40. $\sim q \vee r$

All right angles are not congruent or All acute angles are greater than 90° .

True or False? F + F

41-45: State True or False. If false, give a counterexample to the right of your blank below.

41. All squares have four right angles.

True

42. All acute angles measure 30° .

False

b/c An acute ∇ can be 60° !

43. An even number plus and odd number is even.

False

$$2 + 3 = 5$$

b/c $2 + 3 = 5$

44. Every other day you have Geometry.

False

b/c you don't have it on Sunday.

45. Congruent angles have equal measures.

True

\cong means $=$!

46: Complete the algebraic proof with the correct statement or reason.

Given: $8x - 10 = 2(x + 4)$
 Prove: $x = 3$

Statements	Reasons
a. $8x - 10 = 2(x + 4)$	a. <u>Given</u>
b. <u>$8x - 10 = 2x + 8$</u>	b. Distributive Property of Equality
c. $6x - 10 = 8$	c. <u>Subtraction POE</u>
d. $6x = 18$	d. <u>Addition POE</u>
e. $x = 3$	e. <u>Division POE</u>

47: Complete the algebraic proof to solve for x. You do not have to use all the blank lines if you do not need them to solve the given statement.

Given: $-3(x + 5) + 5 = 2x$
 Prove: $x = \underline{-2}$

Statements	Reasons
a. $-3(x + 5) + 5 = 2x$	a. <u>Given</u>
b. <u>$-3x - 15 + 5 = 2x$</u>	b. <u>Distributive POE</u>
c. <u>$-3x - 10 = 2x$</u>	c. <u>Simplify b</u>
d. <u>$-10 = 5x$</u>	d. <u>Addition POE</u>
e. <u>$-2 = x$</u>	e. <u>Division POE</u>
f. <u>$x = -2$</u>	f. <u>Symmetric POE</u>
g. _____	g. _____

48-49: Complete the following truth tables:

\wedge : And \vee : Or
 $T + T = T$ $F + F = F$, all the rest are true

48.

		AND	OR
p	q	$p \wedge q$	$p \vee q$
T	T	T	T
T	F	F	T
F	T	F	T
F	F	F	F

49.
 all the rest are false

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

\wedge
 \vee
 \wedge