Use the following conditional statement for #1 – 2: If a number is even, then it is divisible by 2. 1) Write the contrapositive. 2) Write the inverse.

Use the following conditional statement for #3 - 5: If you live in Reno, then you do not live in Colorado.

3) Write the inverse.

4) Write the contrapositive.

- 5) Is the inverse true or false? If false, provide a counter example.
- 6) Is the biconditional statement true or false? Explain your reasoning. *Two angles are congruent if and only if they are right angles.*

7. Given: $\frac{3x-1}{5} - 4 = 0$

Prove: x = 7

Statements	Reasons

8) Find the complement of the supplement of the angle that is vertical to an angle with a measure of 151°.

10) Points P, Q, and R are collinear. If PQ = 3, RQ = 15, and PR = 12, which point is between the other two?

For #11 – 12: Determine if each statement is true or false. If false, provide a counterexample.

11. If a figure is a rectangle, then it is a square.

12. If two angles are supplementary, then they are both acute angles.

For #13 – 17, decide whether the statement is always (A), sometimes (S), or never (N) true. Draw a diagram or explain your reasoning for your work. Work must be shown! 13. If two angles are vertical, then they are congruent.

14. Vertical angles are complementary.

15. Two planes intersect at one point.

16. If two angles are complementary, then they are both acute angles.

17. If two angles are supplementary, then they form a linear pair.

Formal Geometry

Ch 2 Review Worksheet

Name_

For #18 – 22: Find the requested values.

18. The ratio of $\angle 1$ to $\angle 2$ is 2:7. Find $\angle 1$ and $\angle 2$.





20. The measure of $\angle F$ is 27° and $\angle G$ is complementary to $\angle F$. $\angle G$ is complementary to $\angle E$. Find the measure of $\angle E$.



23. Given: $\angle Y$ is supp to $\angle X$, and $\angle Z$ is supp to $\angle X$. If $\angle Y = 42^\circ$, find the complement of $\angle Z$. Formal Geometry

Ch 2 Review Worksheet

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27. Given: 3x + 16 = 2(x + 6)

Prove: x = -4

Statements	Reasons
28. Given: $\angle 1$ comp to $\angle 2$	t /
$\angle 1 \cong \angle 3$	3
$\angle 2 \cong \angle 4$ Prove: $\angle 3$ comp to $\angle 4$	1 4
Statements	Reasons

Answers:

- 1) If a number is not divisible by 2, then it is not even. 2) If a number is not even, then it is not divisible by two.
- 3) If you do not live in Reno, then you live in Colorado. 4) If you live in Colorado, then you do not live in Reno.

5) False. Sample answer: You could live in Sacramento, which is not Reno but is not in Colorado.

6) False, Not all congruent angles are right angles. A sample counter example would be 2 angles with measures of 25°.

$(7) \ 1.)\frac{3x-1}{5} - 4 = 0$	1.) given
$(2.)\frac{3x-1}{5} = 4$	2.) + property of equality
3.) $3x - 1 = 20$	3.) x property of equality
4.) $3x = 21$	4.) + property of equality
5.) $x = 7$	5.) division property of equality

8) 61°

9) 1) $m \angle 1 + m \angle 3 = 180$	1) Given
2) $\angle 1$ is supp to $\angle 3$	2) If the sum of 2 angles measure is 180, then they are supp.
3) $\angle 1$ and $\angle 2$ form a linear pair.	3) Diagram
4) $\angle 1$ is supp to $\angle 2$	4) If 2 angles form a linear pair, then they are supp.
5) $\angle 2 \cong \angle 3$	5) If 2 angles are supplements of the same angle, then they are congruent.

10) P

11) False. Sample: A rectangle with sides of 3 in and 5 in is not a square.

12) False.	Sample 120 degrees and	l 60 degrees are s	upplementary values	, but only one angle	is acute.
13) A	14) S	15) N	16) A	17) S	18) 40° and 140°
19) $x = 8 c$	or $-3; <7 = 64^{\circ} \text{ or } 9^{\circ}$	20) 27°	21) $x = 48; <$	$5 = 42^{\circ}$ 22) <	$<9 = 65^{\circ}; <10 = 65^{\circ}$
23) 48°	24) <3=58°				

25) 1) $\overline{KJ} \cong \overline{MK}$ and J is the midpoint of \overline{HK} .	1) Given
2) $\overline{KJ} \cong \overline{HJ}$	2) If a point is a midpoint, then it creates 2 congruent segments.
3) $\overline{HJ} \cong \overline{MK}$	3) Transitive

26) 1) $\angle 2$ is comp to $\angle 3$; $\angle 1$ is comp to $\angle 4$	1) Given
2) <1 and <2 are vertical Angles	2) Diagram
3) $\angle 1 \cong \angle 2$	3) If two angles are vertical, then they are \cong .
$4) \ \angle 4 \ \cong \ \angle 3$	4) If two angles are comps of \cong angles, then they are \cong .

27) 1.) $3x + 16 = 2(x + 6)$	1.) Given
2.) $3x + 16 = 2x + 12$	2.) Distributive property of equality
3.) $x + 16 = 12$	3.) Subtraction property of equality
(4.) x = -4	4.) Subtraction property of equality
	You could combine steps 3 and 4 if you prefer.
28) 1) $\angle 1$ is comp to $\angle 2$; $\angle 1 \cong \angle 3, \angle 2 \cong \angle 4$	1) Given
2) $\angle 3$ is comp to $\angle 4$	2) Substitution (1 into 1)