Geometry Honors
Unit 4: Reasoning
4.2 Day 2 Proving Supplementary, Complimentary, Vertical Angles

Mathematician: $\qquad$
Period: $\qquad$
LEVEL: EMERGING

Directions: Use the diagram to answer the following questions.

3) Name an angle supplementary to angle $\angle A G B$.

1) Name all of the angles that are congruent to $\angle D G C$.
2) What angle is vertical to $\angle B G C$ ?
3) What is the measure of $\angle E G F$ ?
4) Complete the two-column proof by filling in the empty spaces.

Given: $m \angle 1=m \angle 4, m \angle E H F=m \angle G H F=90^{\circ}$
Prove: $m \angle 2=m \angle 3$
LEVEL: PROFICIENT


Reasons

| Statements |  |
| :--- | :--- |
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6) Complete the two-column proof by filling in the reasons for each statement.

Given: $\angle R M P \cong \angle T M S$
Prove: $\angle R M S \cong \angle T M P$


| Statements | Reasons |
| :--- | :--- |
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7) Find $m \angle P D T$

$m \angle P D T=\square$
8) $\angle 1$ and $\angle 2$ are vertical angles.
$\angle 3$ is a supplement of $\angle 1$.
$\angle 4$ is a complement of $\angle 1$.
What must be true about $\angle 4$ ?
$x=$
9) $\angle 1$ is equal to the sum of $\angle 3$ and $\angle 4$.
$\angle 1$ and $\angle 2$ are a linear pair
$\angle 1 \cong \angle 2$
What must be true about $\angle 4$ ?

Select all that apply
(A) $\angle 4$ is less than $90^{\circ}$
(B) $\angle 4=90^{\circ}$
(C) $\angle 4$ is more than $90^{\circ}$
(D) $\angle 4$ is a compliment of $\angle 3$
(E) $\angle 4 \cong \angle 3$
(A) $\angle 4$ is less than $90^{\circ}$
(B) $\angle 4=90$
(C) $\angle 4$ is more than 90
(D) $\angle 4$ could form a linear pair with $\angle 3$
(E) $\angle 4$ is a compliment of $\angle 2$
8) Solve for $x$.

Select all that apply


Directions: Complete the proof by placing the reasons in the correct order. (Circle A B C D E in each step). Each option is only used once.
11) Given: Line k and line l intersect.

Prove: $\angle 1 \cong \angle 3$


| Statements |  |  | Reasons |  |
| :--- | :--- | :--- | :--- | :--- |
| $(1)$ | Line k and line l intersect. | $(1)$ | Given |  |
| $(2)$ | Question a | A B C D E | $(2)$ | Definition of a Linear Pair |
| $(3)$ | Question b | A B C D E | $(3)$ | Substitution |
| $(4)$ | Question c | A B C D E | $(4)$ | Subtraction Property of Equality |
| $(5)$ | Question d | A B C D E | $(5)$ | Definition of Congruence |

A) $m \angle 2+m \angle 3=180^{\circ}$
B) $m \angle 1=m \angle 3$
C) $m \angle 1+m \angle 2=180^{\circ}$
D) $\angle 1 \cong \angle 3$
E) $m \angle 1+m \angle 2=m \angle 2+m \angle 3$

