Geometry Honors
Unit 5: Parallel and Perpendicular Lines
5.2b Constructions of Perpendicular Lines
$\qquad$
Period: $\qquad$

## LEVEL: EMERGING

Directions: Use the following diagram to determine whether enough information is given to conclude that the statement is true in questions 1 through 6. Explain your answers.


1) $g \| h$
2) $\angle 7 \cong \angle 10$
3) $\angle 6 \cong \angle 8$
4) $\angle 7 \cong \angle 11$
5) $\angle 7 \cong \angle 9$
6) $\angle 6 \cong \angle 11$

Directions: Fill in the following two-column proof.
7) Given: $\overrightarrow{E D} \perp \overrightarrow{E F}$

Prove: $\angle 7$ and $\angle 8$ are complementary.


| Statements | Reasons |
| :--- | :--- |
| $(1)$ | $(1)$ |
| $(2)$ | $(2)$ |
| $(3)$ | $(3)$ |
| $(4)$ | $(4)$ |
| $(5)$ | $(5)$ |
| $(6)$ | $(6)$ |

Error Analysis: Explain why the statement about the figure is incorrect.
8)


Lines $y$ and $z$ are parallel.

9) In the helicopter at the right, are $\angle A X B$ and $\angle C X B$ right angles? Explain.


Directions: Construct a perpendicular line from a point on the line.
10)
11)


Directions: Construct a perpendicular line to the original line that passes through the given point.
13)

Directions: Construct a line parallel to the given one.
14)
$\longrightarrow+2+\infty$

Directions: Construct a line parallel to the given one, through the given point.
17)

