Name: _____ Date: _____ Row: _____ Period: _____

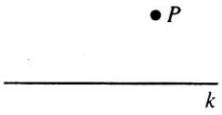
Assignment #: _____

# Parallel Lines and Planes

**For use after Chapter 3**

**Classify each statement as true or false.**

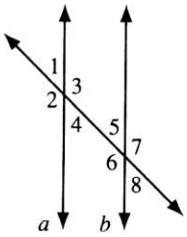
1. There is at least one line through $P$ parallel to $k$. _____
2. There is at most one line through $P$ perpendicular to $k$. _____
3. If $j \perp k$ and $n \perp k$, then $j \parallel n$. _____




Exs. 1–3

**In Exercises 4–7 assume that $a \parallel b$.**

4. Name all angles that must be congruent to $\angle 1$. _____
5. If $m\angle 4 = 40$, then $m\angle 6 =$ _____.
6. If $m\angle 4 = 2x - 7$ and $m\angle 8 = x + 13$, then $x =$ _____.
7. If $m\angle 3 = 4x - 7$ and $m\angle 5 = x + 2$, then $x =$ _____.




Exs. 4–10

**Write the postulate or theorem that justifies each statement.**

8. If $\angle 4 \cong \angle 5$, then $a \parallel b$. _____

_____

9. If $a \parallel b$, then $\angle 3$ and $\angle 5$ are supplementary. _____

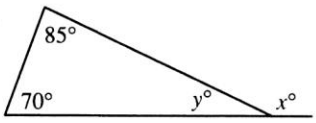
_____

10. If $\angle 2 \cong \angle 6$, then $a \parallel b$. _____

_____

**Find the values of $x$ and $y$.**

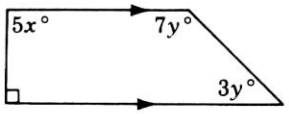
11.




$x =$ _____

$y =$ _____

12.




$x =$ _____

$y =$ _____

**Complete.**

13. Each exterior angle of a 10-sided polygon has measure _____.
    Each interior angle has measure _____.
14. Each exterior angle of a(n) _____-sided polygon has measure 24. Each interior angle has measure _____.
15. Predict the next two numbers in the sequence.
    $-1, 2, -4, 8, -16, 32,$ _____, _____

| 6) | 7) | 13) | 14) |
|---|---|---|---|
| | | | |

# Practice 11
## *Applying Parallel Lines to Polygons*

**Lessons 3-4 through 3-6**

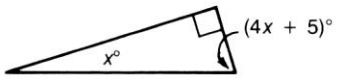
Complete each statement with the word *always*, *sometimes*, or *never*.

1. An isosceles triangle _____ has exactly two congruent sides.
2. A conclusion reached by deductive reasoning is _____ true if the hypotheses are true.
3. A 17-sided convex polygon is _____ equiangular.
4. A conclusion based on several past observations is _____ true.

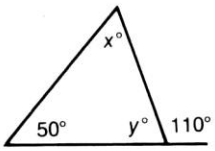
Complete.

5. The sum of the measures of the exterior angles of any convex polygon, one at each vertex, is _____.
6. The sum of the measures of the acute angles of a right triangle is _____.
7. The sum of the measures of the angles of a convex polygon with $n$ sides is _____.
8. Each angle of an equiangular quadrilateral has measure _____.

Find the indicated values. The figure in Exercise 11 is a regular hexagon.

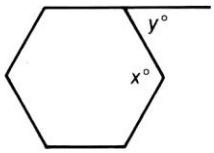
9. 


$x =$ _____

10. 


$x =$ _____

$y =$ _____

11. 


$x =$ _____

$y =$ _____

Look for a pattern and predict the next three numbers in each sequence.

12. 128, $-64$, 32, $-16$, 8, . . . _____
13. 1, $\frac{1}{2}$, 2, 1, 4, 2, 8, . . . _____

Accept the two statements as given information. State a conclusion based on deductive reasoning. If no conclusion can be reached, write *none*.

14. In $\triangle ABC$, $m\angle C = 90$.
In a triangle, there can be at most one right or obtuse angle.
_____

15. When there is a basketball game, the school parking lot is full.
The school parking lot is full tonight.
_____

| 9) | 10) | 11) |
|---|---|---|
| | | |