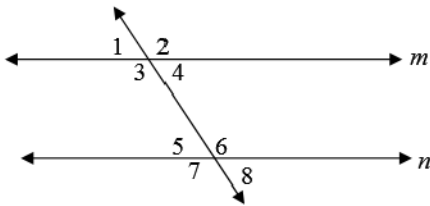


Geometry

Problem Set #9

Name: \_\_\_\_\_

Period: \_\_\_\_\_



1. **Given:  $m \parallel n$ . Solve for  $x$ . Consider each problem independently.**

a)  $m\angle 1 = 4x - 15; m\angle 7 = 2x + 45$

b)  $m\angle 4 = 5x - 68; m\angle 8 = 3x + 42$

c)  $m\angle 3 = x + 43; m\angle 6 = 4x - 20$

2.

a) Write the contrapositive of:  
If  $x=5$  then  $x+2=7$

b) Write as a conditional statement:  
All witches ride brooms.

c) Give a counterexample of:  
A multiple of 5 is always odd.

d) Choose from always, sometimes, or never.

i) A square is a quadrilateral

ii) A trapezoid is a parallelogram

iii) A rhombus is a rectangle

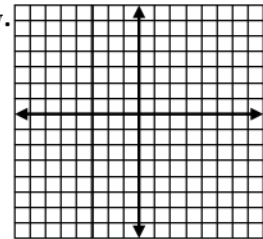
3. **Given the two points A(-3,4) and B(2,-6). Round to nearest tenth if necessary.**

a) find the slope

b) find the midpoint

c) find the slope of any line perpendicular

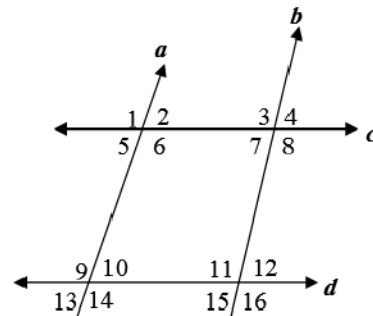
d) find the distance



4-5. **Determine which lines, if any, are parallel given the listed information. Explain your answer. Consider each problem independently.**

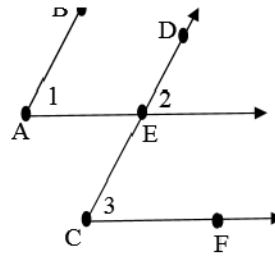
4.  $m\angle 1 = m\angle 14$

5.  $m\angle 10 = m\angle 12$



6. Given:  $\overline{AB} \parallel \overline{CD}$  and  $m\angle 1 = m\angle 3$

Prove:  $\overline{AE} \parallel \overline{CF}$



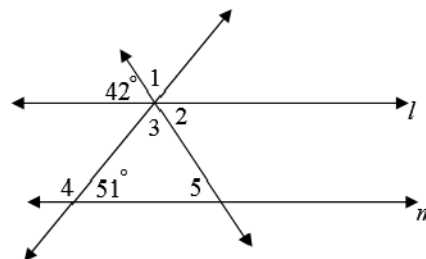
Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.

7. In the accompanying diagram,  $l$  and  $m$  are parallel lines.

Find  $m\angle 1$ ,  $m\angle 2$ ,  $m\angle 3$ ,  $m\angle 4$  and  $m\angle 5$ .

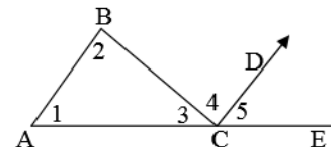
$m\angle 1 =$        $m\angle 2 =$        $m\angle 3 =$

$m\angle 4 =$        $m\angle 5 =$



8. Given:  $\overline{AB} \parallel \overline{CD}$  and  $m\angle 1 = m\angle 2$

Prove:  $m\angle 4 = m\angle 5$



Statements	Reasons
1. $\overline{AB} \parallel \overline{CD}$ and $m\angle 1 = m\angle 2$	1.
2.	2. If lines are parallel, then alternate interior angles are equal.
3.	3. Substitution Property
4. $m\angle 1 = m\angle 5$	4.
5.	5.

9. Factor  $10x^2 - 11x - 6$

10. Solve  $2x^2 - 3x = 5$

11. Simplify  $\frac{x^2 - 16}{x^2 - x - 12}$