

Identify all corresponding angles, alternate interior angles, alternate exterior angles, consecutive interior angles, vertical angles and linear pair using the image below.

1. Corresponding Angles

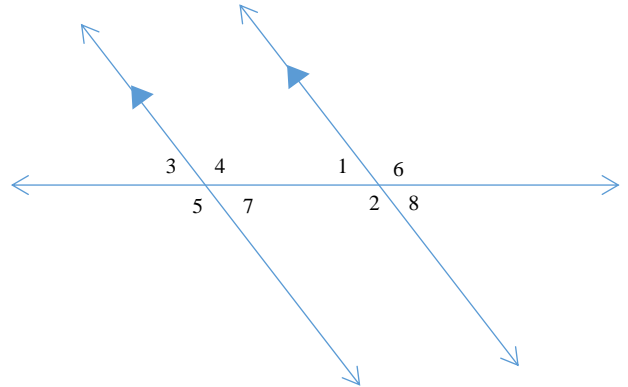
2. Alternate Interior Angles:

3. Alternate Exterior Angles:

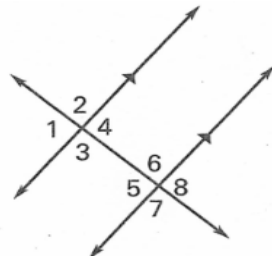
4. Consecutive Interior Angles:

5. Vertical Angles:

6. Linear pair:



Complete the statement using the diagram.



7.  $\angle 1$  and \_\_\_\_\_ are corresponding angles

8.  $\angle 4$  and \_\_\_\_\_ are alternate interior angles

9.  $\angle 4$  and \_\_\_\_\_ are consecutive interior angles

10.  $\angle 5$  and \_\_\_\_\_ are vertical angles

11.  $\angle 3$  and \_\_\_\_\_ are alternate interior angles

12.  $\angle 1$  and \_\_\_\_\_ are vertical angles

13.  $\angle 5$  and \_\_\_\_\_ are consecutive interior angles

14.  $\angle 7$  and \_\_\_\_\_ are corresponding angles

15.  $\angle 2$  and \_\_\_\_\_ are vertical angles

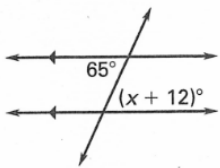
16.  $\angle 1$  and \_\_\_\_\_ are alternate exterior angles

17.  $\angle 6$  and \_\_\_\_\_ are corresponding angles

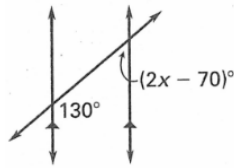
18.  $\angle 4$  and \_\_\_\_\_ are corresponding angles

Find the value of  $x$ .

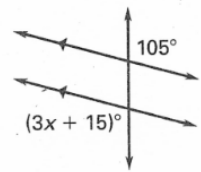
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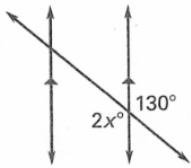
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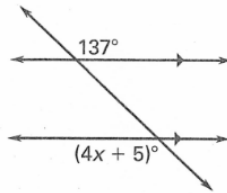
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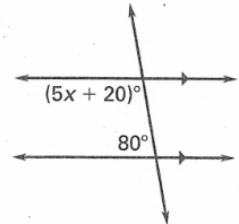
22.



23.

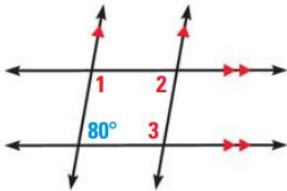


24.

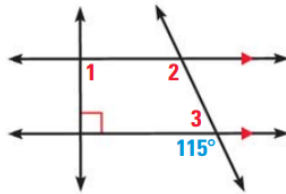


Find  $m\angle 1$ ,  $m\angle 2$  and  $m\angle 3$ .

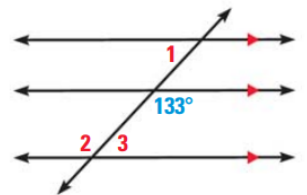
25.



26.

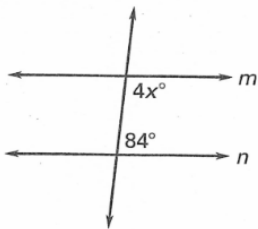


27.

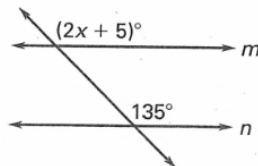


Find the value of  $x$  that makes  $m \parallel n$ .

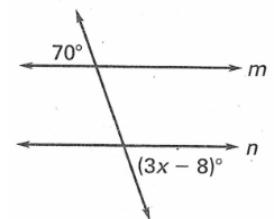
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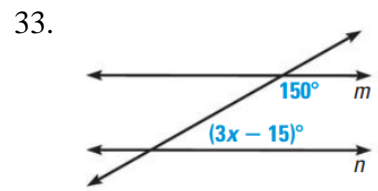
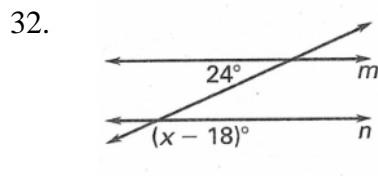
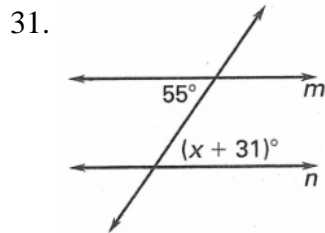


29.

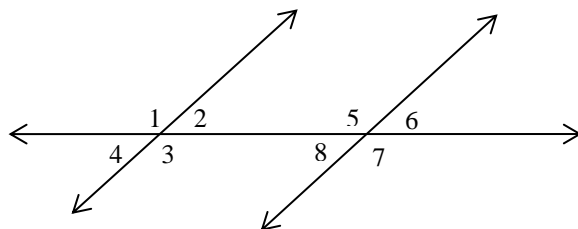


30.





Use the diagram and information below to determine if there is enough information to prove  $a \parallel b$ . Write parallel or not parallel. If the lines are parallel, write which theorem or postulate justifies your answer.



34. Given:  $\angle 4 \cong \angle 6$

35. Given:  $\angle 4 \cong \angle 2$

36. Given:  $m\angle 4 + m\angle 1 = 180^\circ$

37. Given:  $\angle 4 \cong \angle 8$

38. Given:  $\angle 5 \cong \angle 7$

39. Given:  $m\angle 2 + m\angle 5 = 180^\circ$

40.  $m\angle 7 + m\angle 8 = 180^\circ$

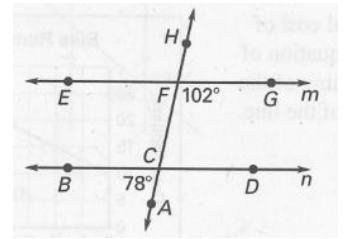
41. Given:  $\angle 3 \cong \angle 5$

42. Given:  $\angle 2 \cong \angle 5$

43. Given:  $m\angle 3 + m\angle 6 = 180^\circ$

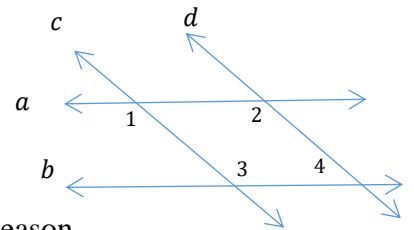
44. **Given:**  $m\angle BCA = 78^\circ$   
 $m\angle CFG = 102^\circ$

**Prove:**  $m \parallel n$



Statement	Reason
1. _____	1. _____
1. _____	2. _____
2. $\angle FCD \cong \angle BCA$	3. Definition of Congruent Angles
3. _____	4. _____
4. $m\angle FCD = 78^\circ$	5. _____
5. $78^\circ + 102^\circ = 180^\circ$	6. _____
6. $m\angle FCD + m\angle CFG = 180^\circ$	7. Definition of Supplementary Angles
7. _____	8. _____
8. _____	

45. **Given:**  $\angle 2 \cong \angle 3$ ,  $a \parallel b$   
**Prove:**  $c \parallel d$



Statement	Reason
1. _____	1. _____
1. _____	2. _____
2. $m\angle 2 = m\angle 3$	3. Consecutive Interior Angles Theorem
3. _____	4. _____
4. $m\angle 2 + m\angle 4 = 180^\circ$	5. Substitution Property
5. _____	6. _____
6. $\angle 3$ and $\angle 4$ are supplementary	7. _____
7. _____	

Find the slope of the line that passes through the points. **Show your work.**

46. (3, 4) and (5, 6)

47. (6, -6) and (2, -6)

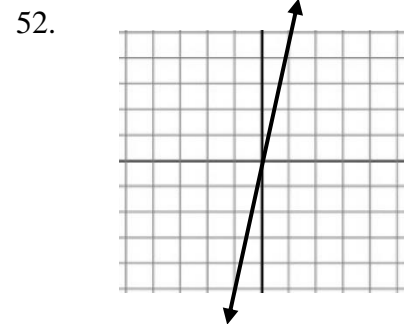
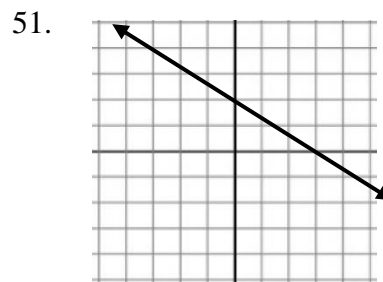
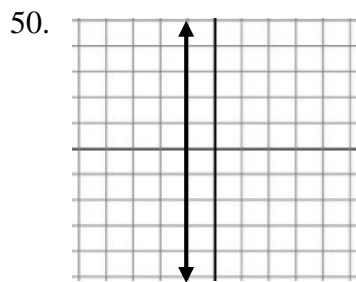
48. (-4, 3) and (-9, 7)

Tell whether the lines through the given points are parallel, perpendicular or neither. **Justify your answer.**

49. Line 1:  $(0, 1)$  and  $(1, 4)$   
Line 2:  $(3, 2)$  and  $(6, 3)$

50. Line 1:  $(-2, 1)$  and  $(1, -1)$   
Line 2:  $(1, 3)$  and  $(4, 1)$

Write an equation ( $y = mx + b$ ) of the line shown.



53. Write an equation of the line with the given slope  $m$  and y-intercept  $b$ .  $\rightarrow m = \frac{3}{5}, b = 7$

Write an equation of the line that passes through the given point  $P$  and has the given slope  $m$ . **Show your work!**

54.  $P(5, 4), m = 4$

55.  $P(6, -2), m = 3$

56. Find the equation of a line in slope-intercept form that passes through  $(4, 1)$  and  $(2, 2)$ . **Show your work!**

57. Find equations in slope-intercept form of the lines go through point  $P(8, -5)$  and that are parallel and perpendicular to line  $L \rightarrow L: y = 4x - 2$  **Show your work!**

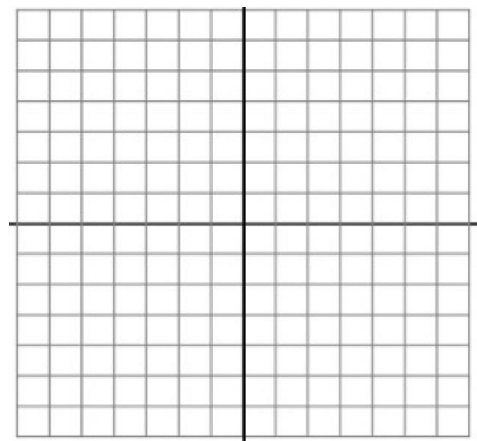
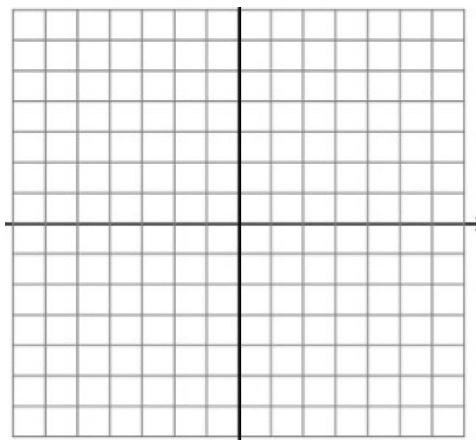
a.) Parallel Line:

b.) Perpendicular Line:

Graph each equation.

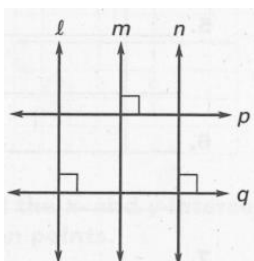
58.  $y = -\frac{4}{5}x + 5$

59.  $-3y = -9x + 12$

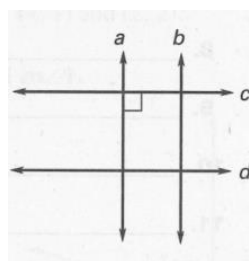


Determine which lines, if any must be parallel. **Explain.**

60.

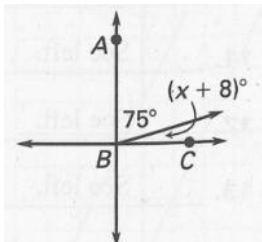


61.



In the diagram,  $\overrightarrow{AB} \perp \overrightarrow{BC}$ . Find the value of  $x$ .

62.



63.

