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Unit 3 Study Guide

2-5: Algebraic Proof

Identify the property that justifies each statement

1. $x = y$ and $y = z$, so $x = z$

2. $\angle DEF \cong \angle DEF$

3. $\overline{AB} \cong \overline{CD}$, so $\overline{CD} \cong \overline{AB}$.

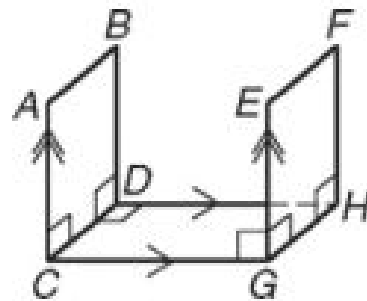
3-1: Lines and Angles

Use the diagram to the right for questions 4-7.

4. Name a pair of parallel segments.

5. Name a pair of skew segments.

6. Name a pair of perpendicular segments.



7. Name a pair of parallel planes.

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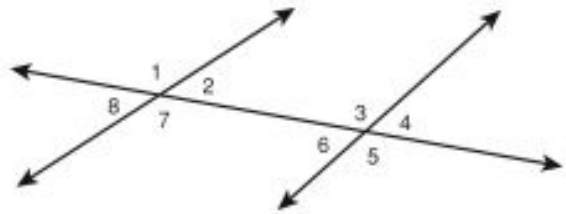
Use the diagram to the right for questions 8-11.

8. Name a pair of corresponding angles.

9. Name a pair of same-side interior angles.

10. Name a pair of alternate interior angles.

11. Name a pair of alternate exterior angles.



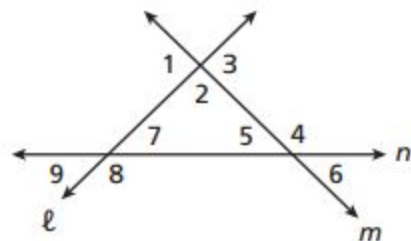
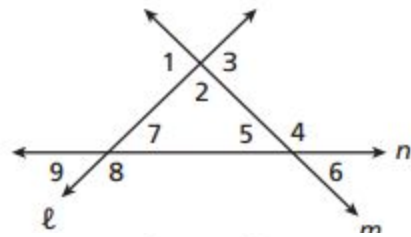
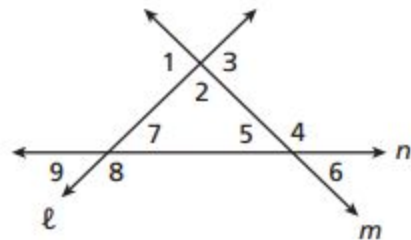
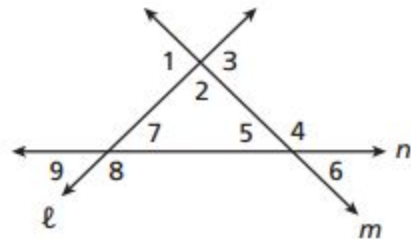
For questions 12-15, identify the transversal and classify the angle pair.

12. $\angle 7$ and $\angle 5$

13. $\angle 3$ and $\angle 5$

14. $\angle 3$ and $\angle 9$

15. $\angle 6$ and $\angle 3$

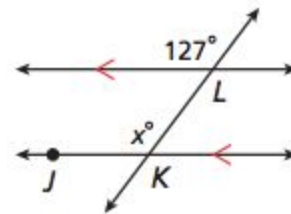


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3-2: Angles Formed by Parallel Lines

For questions 16-17, use the diagram to the right.

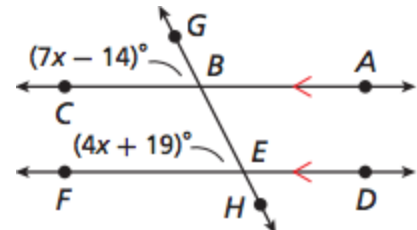
16. Find the value of x



17. What theorem or postulate did you use to find x in question 16?

For questions 18-19, use the diagram to the right.

18. Find the $m\angle BEF$.

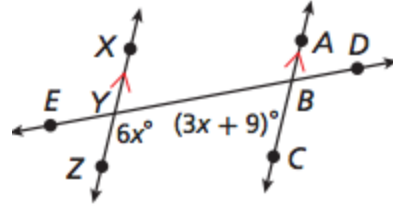


19. What theorem or postulate did you use to find the angle in question 18?

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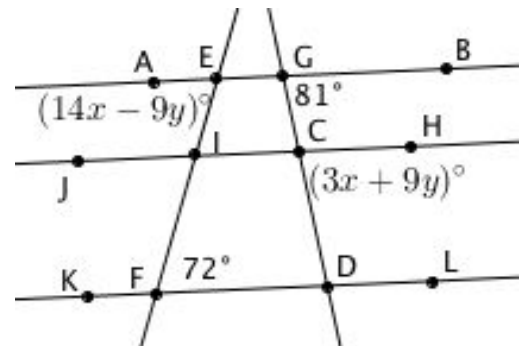
For questions 20-21, use the diagram to the right.

20. Find the $m\angle CBY$



21. What theorem or postulate did you use to find the angle in question 20?

22. In the figure to the right, $\overline{AB} \parallel \overline{JH}$ and $\overline{JH} \parallel \overline{KL}$. Find the value of x and y .



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3-5/3-6 Equations of Lines

23. Use the slope formula to find the slope of a line that passes through the points $(-1, 2)$ and $(3, 4)$.

24. Use the slope formula to find the slope of a line that passes through the points $(2, -4)$ and $(5, 1)$.

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25. Write the equation of a line with a slope of -2 that passes through the point $(-1, 3)$ in slope-intercept form.

26. Write the equation of a line with an x -intercept of -2 and a y -intercept of -1 in point-slope form.

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27. Write the equation of a line that passes through the points $(-2, 2)$ and $(2, 0)$ in point-slope form.

28. Write the equation of a vertical lines that passes through the point $(4, -3)$.

29. Determine the slope and y-intercept of the line $y = 2x - 4$.

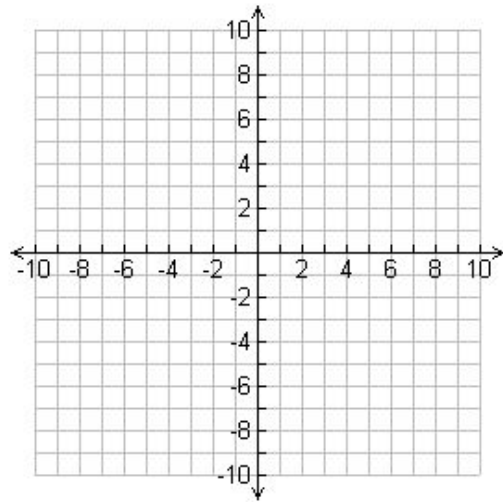
30. Determine the slope and y-intercept of the line $y = \frac{3}{4}x + 8$

31. Determine the slope and a point on the line $y - 3 = \frac{2}{3}(x + 8)$

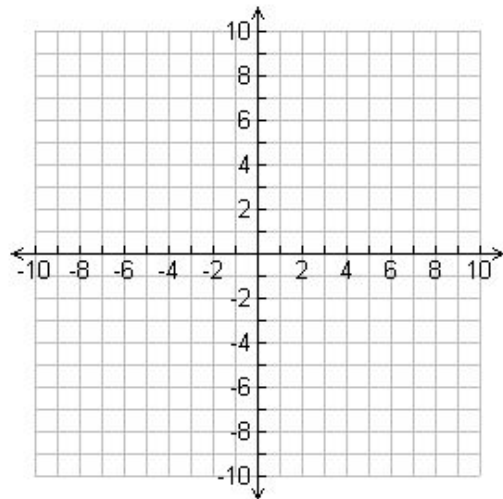
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32. Determine the slope and a point on the line $y + 1 = -5(x + 3)$

33. Graph the line $y = 4x - 1$

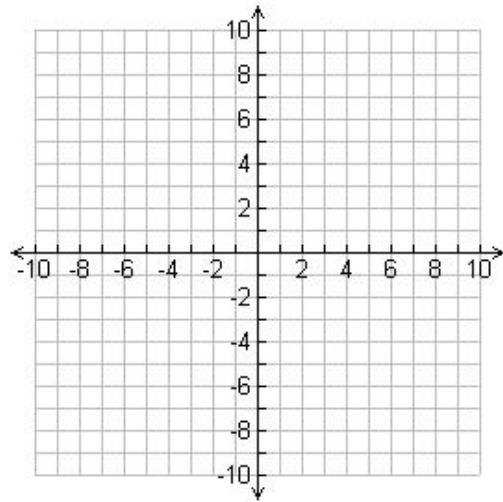


34. Graph the line
 $y + 2 = -\frac{1}{3}(x - 4)$

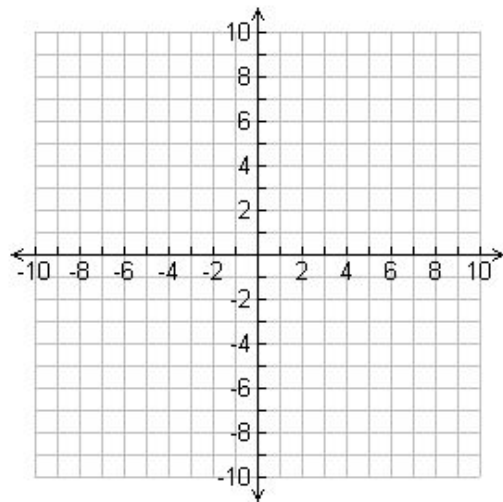


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35. Graph the line $y = \frac{2}{3}x + 4$



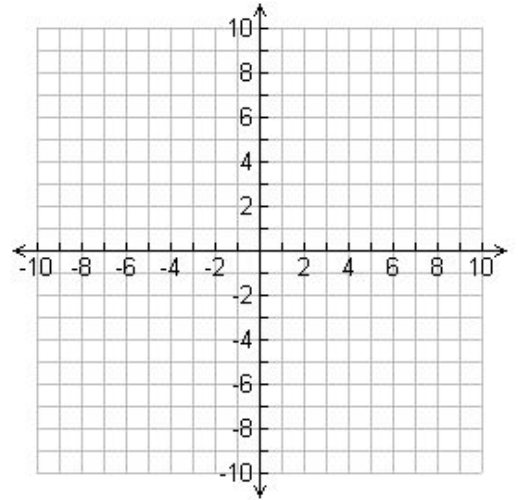
36. Graph the line $5x + 2y = 4$



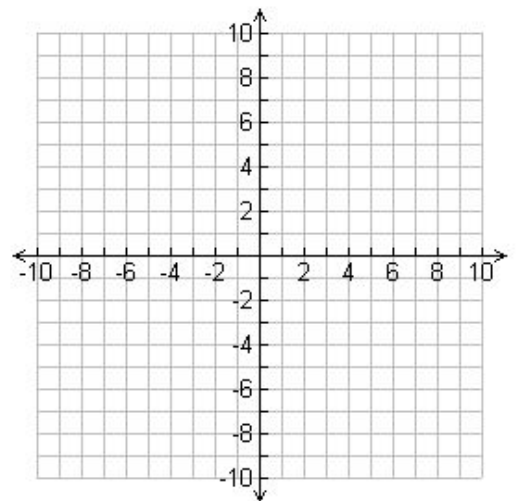
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3-6: Equations of Parallel and Perpendicular Lines

37. Use the slope formula to determine whether the line through $(1, 1)$ and $(2, 4)$ and the line through $(2, -1)$ and $(4, 5)$ are parallel, perpendicular, or neither.

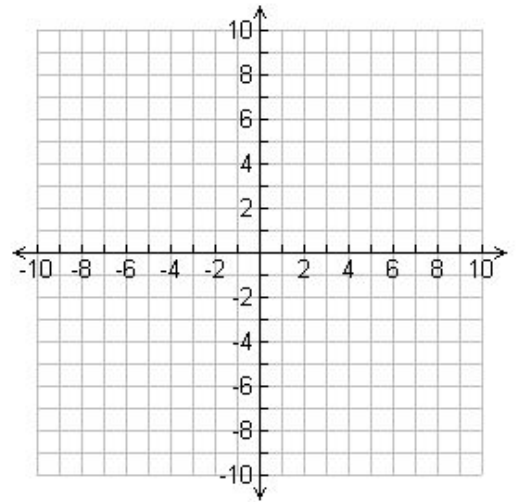


38. Use the slope formula to determine whether the line through $(1, -6)$ and $(1, 5)$ and the line through $(4, -3)$ and $(-5, -3)$ are parallel, perpendicular, or neither.

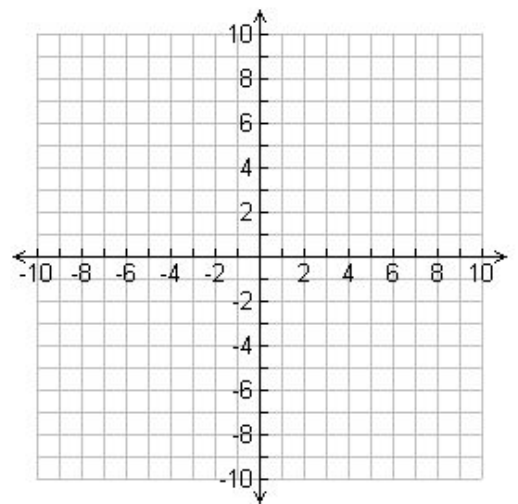


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39. Use the slope formula to determine whether the line through $(1, 1)$ and $(2, 4)$ and the line through $(2, -1)$ and $(-4, 1)$ are parallel, perpendicular, or neither.

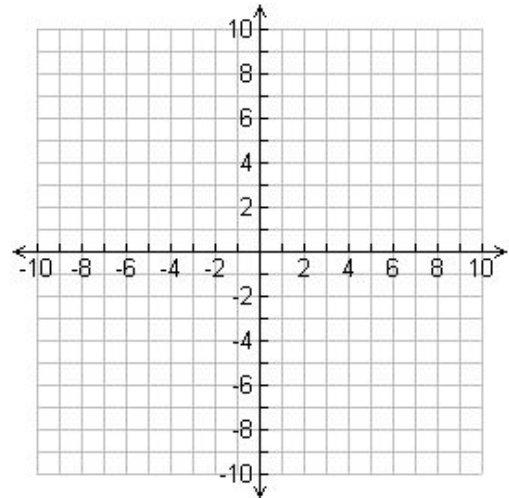


40. Use the slope formula to determine whether the line through $(0, 2)$ and $(6, 1)$ and the line through $(2, 0)$ and $(-4, 1)$ are parallel, perpendicular, or neither.

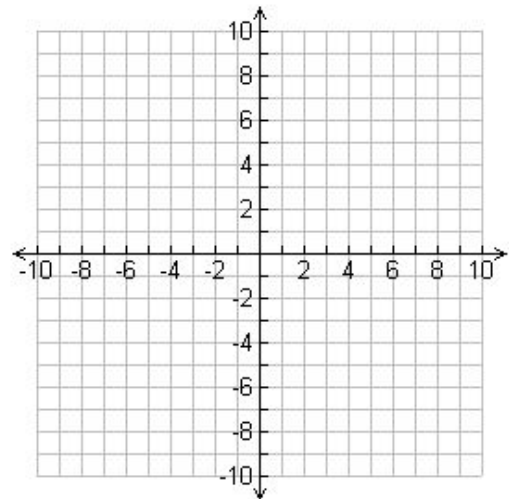


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41. Write the equation of a line in slope-intercept form that is parallel to the line $y = -3x + 8$ and passes through the point $(-2, 1)$

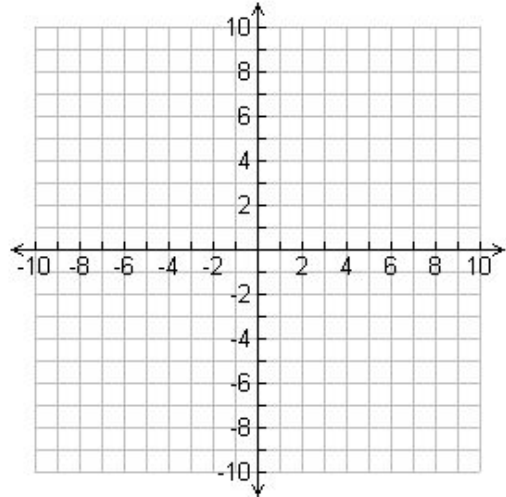


42. Write the equation of a line in slope-intercept form that is **parallel** to the line $y - 5 = \frac{1}{5}(x + 2)$ and passes through the point $(-2, -1)$



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43. Write the equation of a line in slope-intercept form that is **perpendicular** to the line $y - 5 = \frac{1}{5}(x + 2)$ and passes through the point $(-2, -1)$



44. Write the equation of a line in slope-intercept form that is **perpendicular** to the line $y = -3x + 8$ and passes through the point $(-2, 1)$

