Name_____ Class_____ Date_____

Practice 3-7

Slopes of Parallel and Perpendicular Lines

Are the lines parallel, perpendicular, or neither? Explain.

1. $y = 3x - 2$
$y = \frac{1}{3}x + 2$

2. $y = \frac{1}{2}x + 1$
$-4y = 8x + 3$

3. $\frac{2}{3}x + y = 4$
$y = -\frac{2}{3}x + 8$

4. $-x - y = -1$
$y + x = 7$

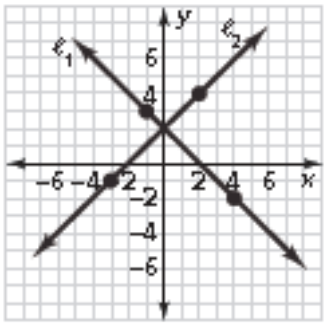
5. $y = 2$
$x = 0$

6. $3x + 6y = 30$
$4y + 2x = 9$

7. $y = x$
$8y - x = 8$

8. $\frac{1}{3}x + \frac{1}{2}y = 1$
$\frac{3}{4}y + \frac{1}{2}x = 1$

Are lines l_1 and l_2 parallel, perpendicular, or neither? Explain.

9.


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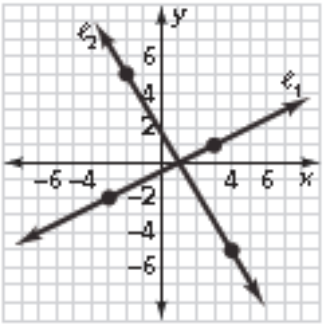

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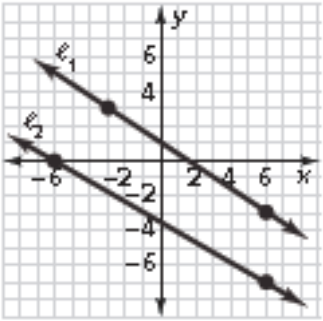

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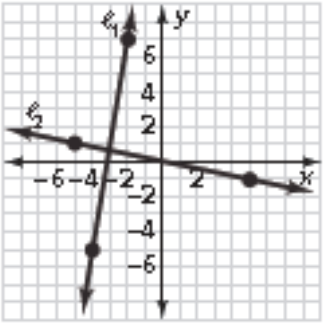

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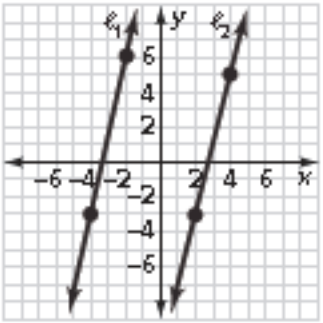

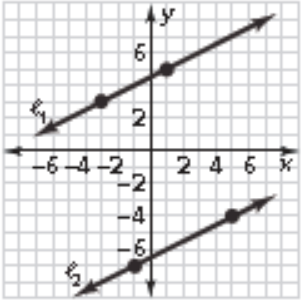

Write an equation for the line perpendicular to $\overleftrightarrow{XY}$ that contains point *Z*.

15. $\overleftrightarrow{XY}$: $3x + 2y = -6$, $Z(3, 2)$

16. $\overleftrightarrow{XY}$: $y = \frac{3}{4}x + 22$, $Z(12, 8)$

17. $\overleftrightarrow{XY}$: $-x + y = 0$, $Z(-2, -1)$

Write an equation for the line parallel to *XY* that contains point *Z*.

18. $\overleftrightarrow{XY}$: $6x - 10y + 5 = 0$, $Z(-5, 3)$

19. $\overleftrightarrow{XY}$: $y = -1$, $Z(0, 0)$

20. $\overleftrightarrow{XY}$: $x = \frac{1}{2}y + 1$, $Z(1, -2)$

21. **Aviation** Two planes are flying side by side at the same altitude. It is important that their paths do not intersect. One plane is flying along the path given by the line $4x - 2y = 10$. What is the slope-intercept form of the line that must be the path of another plane passing through the point $L(-1, -2)$ so that the planes do not collide? Graph the paths of the two planes.

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