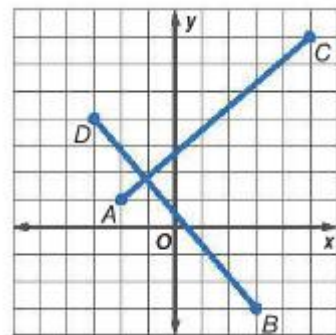
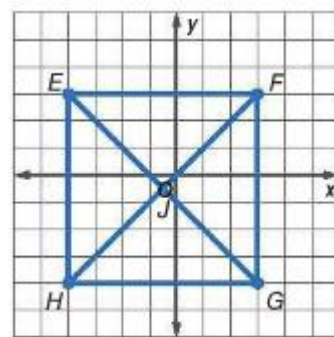


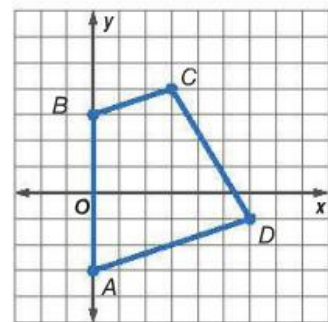
1. A garden is in the shape of a quadrilateral with vertices $A(-2, 1)$, $B(3, -3)$, $C(5, 7)$, and $D(-3, 4)$. Two paths represented by \overline{AC} and \overline{BD} cut across the garden. Are the paths perpendicular? Explain.



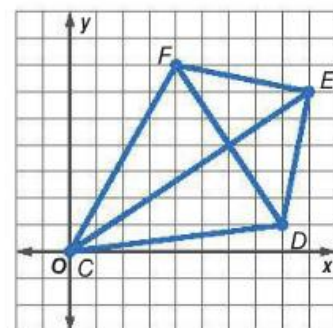
2. One property of squares is that its diagonals are perpendicular. Determine whether the quadrilateral below is a square based on the diagonals.



3. A trapezoid is a quadrilateral that has exactly one pair of parallel opposite sides. Is ABCD a trapezoid? Explain your reasoning.



4. CDEF is a kite. Are the diagonals of the kite perpendicular? Explain your reasoning.

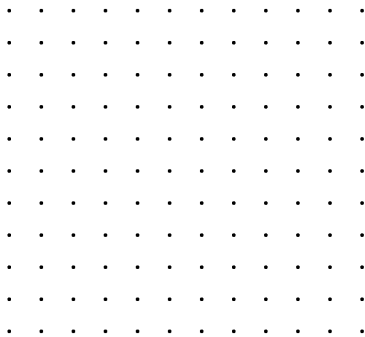
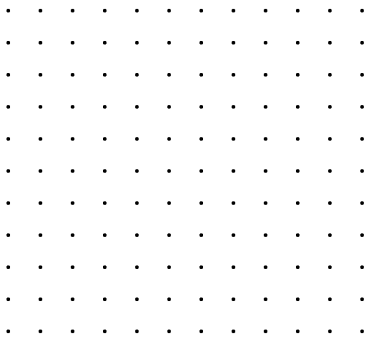


Determine whether \overrightarrow{AB} and \overrightarrow{CD} are *parallel*, *perpendicular*, or *neither*.

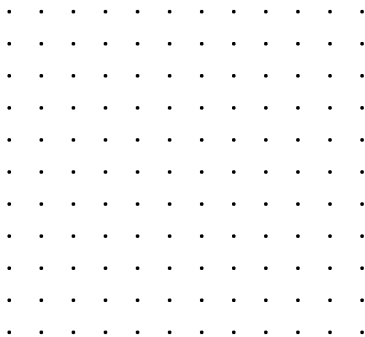
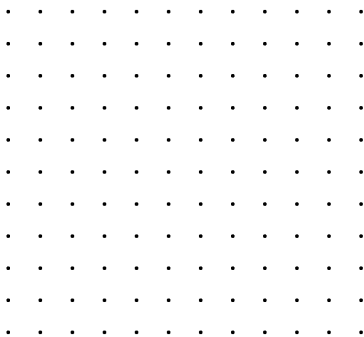
5. A(1, 5), B(4, 4), C(9, -10), D(-6, -5)
6. A(-6, -9), B(8, 19), C(0, -4), D(2, 0)
7. A(4, 2), B(-3, 1), C(6, 0), D(-10, 8)
8. A(8, -2), B(4, -1), C(3, 11), D(-2, -9)
9. A(8, 4), B(4, 3), C(4, -9), D(2, -1)
10. A(4, -2), B(-2, -8), C(4, 6), D(8, 5)

Graph the line that satisfies each condition.

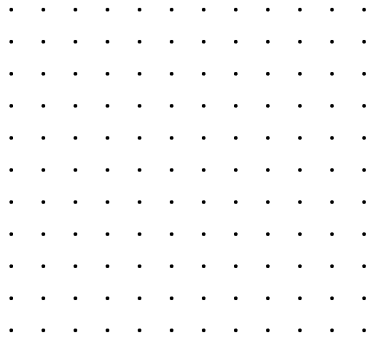
11. Passes through A(2, -5), parallel to \overrightarrow{BC} with B(1, 3) and C(4, 5)
12. Slope = -2, passes through H(-2, -4)



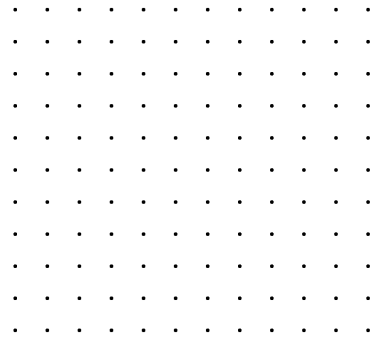
13. Passes through K(3, 7), perpendicular to \overrightarrow{LM} with L(-1, -2) and M(-4, 8)
14. Passes through X(1, -4), parallel to \overrightarrow{YZ} with Y(5, 2) and Z(-3, -5)



15. slope = $\frac{2}{3}$, passes through J(-5, 4)



16. Passes through D(-5, -6), perpendicular to \overline{FG} with F(-2, -9) and G(1, -5)



Determine whether the graphs of each pair of equations are *parallel*, *perpendicular*, or *neither*.

17. $y = 2x + 4$
 $y = 2x - 10$

18. $y = 5x - 8$
 $y = 3x - 8$

19. $y = \frac{1}{2}x - 12$
 $y = -2x + 7$

20. $y = 7x + 3$
 $y = \frac{1}{7}x - 6$

21. $y = 4x + 3$
 $4x + y = 3$

22. $y = -2x$
 $2x + y = 3$

23. $3x + 5y = 10$
 $5x - 3y = -6$

24. $-3x + 4y = 8$
 $-4x + 3y = -6$

25. $2x + 5y = 15$
 $3x + 5y = 15$