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$\qquad$ Date $\qquad$

Write an equation of a line perpendicular to the given line.

1. $2 x-y=12$
2. $x-3 y=15$
3. $y=-4 x+5$
4. $x-5=0$
5. $12 x-16 y=20$

Write an equation of the line through the given point and perpendicular to the given line.
6. $(0,0) ; 2 x-3 y=12$
7. $(1,4) ; x-5 y=15$
8. $(0,-2) ; y=2 x+5$
9. $(5,6) ; y-3=0$
10. $(4,0) ; 5 x-10 y=20$

For Exercises 11-14, find the distance from the given point to the given line.
11. $(-1,3)$; the line with equation $-3 x-y=9$
12. $(0,6)$; the line with equation $4 x-5 y=20$
13. $(8,5)$; the line through points $(4,2)$ and $(-1,5)$
14. $(2,-3)$; the line with equation $y=-3 x+6$
15. Imagine that a classroom is on a three-dimensional coordinate system, as shown below.

a. Describe the location of the origin.
b. Estimate the ordered triples of the four corners of the door.
c. Estimate the ordered triples of the four corners of the desk. (Assume the desk has no height.)
d. Estimate the ordered triples of the four corners of the whiteboard.
16. Find the midpoint of the segment with the given endpoints.
a. $A(4,0,2)$ and $C(0,6,2)$
b. $D(0,0,2)$ and $F(4,6,0)$
c. $B(4,6,2)$ and $G(0,6,0)$
17. One of the vertices of a cube with side length 5 is $(0,0,0)$. What is the length of a diagonal of the cube?

