Parallel and Perpendicular Lines Practice Worksheet A

Name Key Class Period

Determine if the following lines are parallel, perpendicular, or neither. Show work when necessary.

1. $y=\frac{1}{2}x+4$
   $y=\frac{1}{2}x-5$

   parallel

2. $y=2x+7$
   $y=-2x+3$

   neither

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

   perpendicular

4. $2x+4y=8$
   $3x+6y=-6$

   $4y=-2x+8$ $6y=-3x-6$
   $y=-\frac{1}{2}x+2$ $y=-\frac{1}{2}x-1$

   parallel

5. $3x+y=5$
   $x-3y=-3$

   $y=-3x+5$ $-3y=-x-3$
   $y=\frac{1}{3}x+1$

   perpendicular

6. $8x+y=7$
   $8x-y=4$

   $y=-8x+7$ $-y=-8x+4$
   $y=8x-4$

   neither

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

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

   neither

8. $x-2y=-4$
   $y=\frac{1}{2}x+6$

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

   parallel

Write the equation of a line parallel and a line perpendicular to the given line and passes through the given point.

9. $y=\frac{1}{3}x+1 \quad (-3,4)$

Parallel Line:

$m=\frac{1}{3} \quad (-3,4)$

$4=\frac{1}{3}(-3)+b$

$4=-1+b$

$5=b$

$y=\frac{1}{3}x+5$

Perpendicular Line:

$m=-3 \quad (-3,4)$

$4=-3(-3)+b$

$4=9+b$

$-5=b$

$y=-3x-5$

10. $y=4x+2 \quad (-8,-3)$

$m=4 \quad (-8,-3)$

$-3=4(-8)+b$

$-3=-32+b$

$29=b$

$y=4x+29$

$m=\frac{-1}{4} \quad (-8,-3)$

$-3=-\frac{1}{4_1}\cdot\frac{-8^2}{1}+b$

$-3=2+b$

$-5=b$

$y=-\frac{1}{4}x-5$

11. $y=\frac{-2}{3}x+1 \quad (-6,1)$

$m=-\frac{2}{3} \quad (-6,1)$

$1=-\frac{2}{3_1}\cdot\frac{-6^2}{1}+b$

$1=4+b$

$-3=b$

$y=-\frac{2}{3}x-3$

$m=\frac{3}{2} \quad (-6,1)$

$1=\frac{3}{2_1}\cdot\frac{-6^3}{1}+b$

$1=-9+b$

$10=b$

$y=\frac{3}{2}x+10$

12. $y=\frac{-5}{2}x-3 \quad (10,-3)$

$m=-\frac{5}{2} \quad (10,-3)$

$-3=-\frac{5}{2_1}\cdot\frac{10^5}{1}+b$

$-3=-25+b$

$22=b$

$y=-\frac{5}{2}x+22$

$m=\frac{2}{5} \quad (10,-3)$

$-3=\frac{2}{5_1}\cdot\frac{10^2}{1}+b$

$-3=4+b$

$-7=b$

$y=\frac{2}{5}x-7$