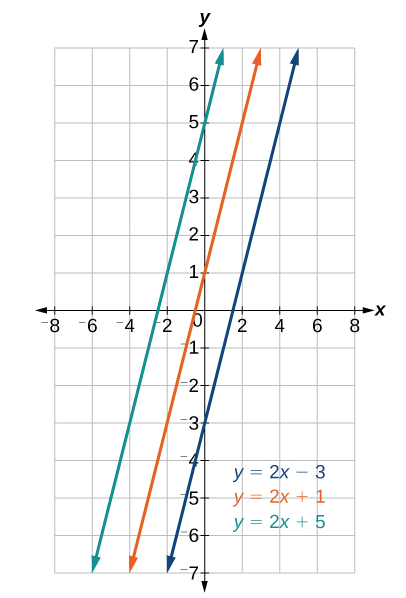
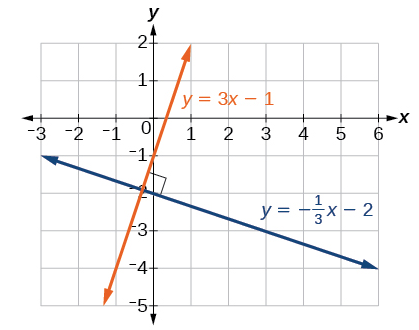
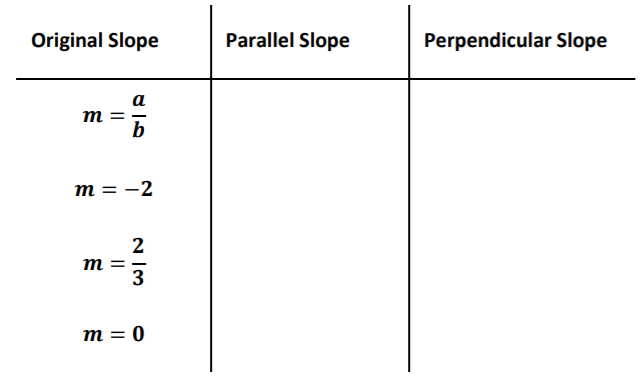
**Determining Whether Graphs of Lines are Parallel or Perpendicular**

Parallel lines have the same slope and different intercepts. Lines that are parallel to each other will never intersect.

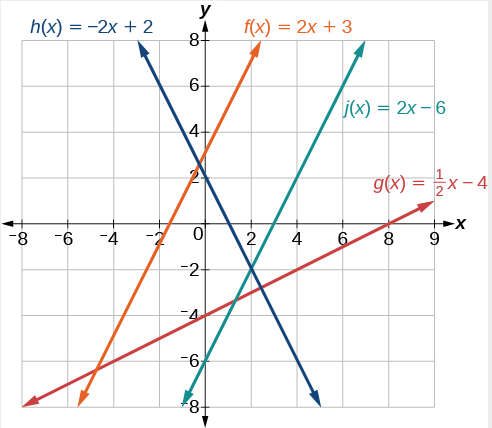
Perpendicular lines intersect at a 90-degree angle. The slope of one line is the negative reciprocal of the other.

Examples:



1. Given the functions below, identify the functions whose graphs are a pair of parallel lines and a pair of perpendicular lines



1. Determine whether the lines are parallel, perpendicular, or neither: and .

Determining whether two lines are parallel or perpendicular is a matter of comparing the slopes. To write the equation of a line parallel or perpendicular to another line, follow the same principles as finding the equation of a line paying attention to the necessary slope.

**Writing the Equation of Lines Parallel or Perpendicular to a Given Line**

Examples

1. Write the equation of a line parallel and perpendicular to and passing through the point (3, 5).
2. A line passes through the points and . Find the equation of a perpendicular line that passes through the point .
3. Write an equation for the line that is parallel to and passes through the point .