Parallel and perpendicular essay

Life, Adolescence

1. One line is parallel to another if the two have the same slope, thus they don’t intersect (Young, 2010). Therefore, to find a line parallel to a given line, it is firstly necessary to establish that the lines have the same slope. The slope value helps to construct a general equation of the lines parallel to the given one. For y=-2x+4 with the slope equal to -2, all parallel lines have the form y=-2x+b, where b is the y-intercept of the equation (the line intercepts y-axis b units away from the origin). Since the line sought passes through a point represented by the ordered pair (8,-1), in the second step we plug in the entries of the ordered pair into the equation:

-1=-2*8+b, hence b= 15. Therefore the equation of the line parallel to y=-2x+4 and passing through the point (8,-1) in the slope-intercept form is y1=-2x+15.

2. The line is perpendicular to another one only if their slopes are negative reciprocals (McKeague, 2011). Therefore, if the slope of the given line y=-4x-5 is -4, then the slope of the lines perpendicular to it is ¼ . Since the line evaluated passes through the point represented by the ordered pair (0,-1), which is the y-intercept, in the second step it is possible to plug in the values of the point into the general equation of the lines perpendicular to y=-4x-5: -1=-2*0 + b, hence b =-1. Therefore the equation of the line perpendicular to y=-4x-5 in the slope-intercept form is y1 = (¼)x-1.

References

McKeague, C. P. (2011). Elementary algebra. Mason, OH: Cengage Learning.

Young, C. Y. (2010). Precalculus. Hoboken, NJ: John Wiley & Sons.