Answer on Question #83045 – Math – Analytic Geometry

Question

Find the equation of the line which is parallel to the 2y+3x=3 and passes through the midpoint (-2, 3) and (4, 5)

Solution

Parallel lines have equal slopes, therefore we find the slope m of 2y+3x=3:

2y+3x=3

2y=-3x+3

y=-3/2x+3/2

y=-1.5x+1.5

m=-1.5

Thus, the slope of the line parallel to the 2y+3x=3 also will be m=-1.5.

The midpoint between two points is ((x1+x2)/2, (y1+y2)/2)

x1=-2, x2=4, x0 = (-2+4)/2=1,

y1=3, y2=5, y0 = (3+5)/2=4.

Equation of the unknown line is

(y-y0) = m(x-x0)

(y-4) = -1.5(x-1)

y = -1.5x+5.5

2y+3x=11

Answer: 2y+3x=11.