MATH 3592H
09/06/16

(1) Convert the line $2x + 5y = 7$ in $\mathbb{R}^2$ into:
   (a) slope-intercept form $y = mx + b$;

   (b) at least one point-slope form $y - y_0 = m(x - x_0)$;

   (c) at least one parametric form $[x, y] = [x_0, y_0] + t[u, v]$.

(2) Find the intersection of $2x + 5y = 7$ with
   (a) $4x + 10y = 8$;

   (b) $4x + 10y = 14$;

(c) $x + 2y = 1$.

(3) Prove using induction on n that

(a)

$$\sum_{i=1}^{n} i = n(n+1)/2;$$

(b)

$$\sum_{i=1}^{n} i^3 = \left[\sum_{i=1}^{n} i\right]^2.$$

(4) Prove, by contradiction, that, if n is an integer and n^2 is even, then n is even.