Suggested Homework for Lectures 1

Math 116

(1) Give the slope-intercept equation for the line described:

(1a) Through the point passing through $(0,5)$ and having slope 2

(1b) Through the point $(1,4)$ having slope -1

(1c) Through the points $(3,2)$ and $(5,5)$

(1d) Through the points $(-1,0)$ and $(2,-3)$

(1e) Having x-intercept 2 and y-intercept 3

(2) Give the factorization for each of the following, and then solve for x:

(2a) $6x^2+13x+6=0$

(2b) $x^2-2x-15=0$

(2c) $3x^2+x-2=0$

(2d) $x^2=2x-1$

(2e) $20x^2+x=1$

(3) Solve the following for x (when possible):

(3a) $x^2-x-5=0$

(3b) $6x^2+10x+2=0$

(3c) $2x^2+2x+3=0$

(3d) $-5x^2+x+1=0$

(3e) $3x^2+15x=2$

(4) Solve the following for x (when possible):

(4a) $5e^x-3=0$

(4b) $10e^{3x}=2$

(4c) $e^{x^2+x}+1=0$

(4d) $\ln(3x+5)=2$

(4e) $\ln(x^2+1)=0$

Answers to Suggested Homework for Lecture 1

Math 116

(1a) $y = 2x+5$
(1b) $y = -x+5$
(1c) $y = \frac{3}{2}x - \frac{5}{2}$
(1d) $y = -x-1$
(1e) $y = -\frac{3}{2}x+3$

(2a) $(2x+3)(3x+2)$, $x = -\frac{3}{2}$, $x = -\frac{2}{3}$
(2b) $(x-5)(x+3)$, $x = 5$, $x = -3$
(2c) $(3x-2)(x+1)$, $x = \frac{2}{3}$, $x = -1$
(2d) $(x-1)(x-1)$, $x = 1$
(2e) $(5x-1)(4x+1)$, $x = \frac{1}{5}$, $x = -\frac{1}{4}$

(3a) $x = \frac{1\pm\sqrt{21}}{2}$
(3b) $x = \frac{-5\pm\sqrt{13}}{6}$
(3c) No solution
(3d) $x = \frac{-1\pm\sqrt{21}}{-10} = \frac{1\pm\sqrt{21}}{10}$
(3e) $x = \frac{-15\pm\sqrt{249}}{6}$

(4a) $x = \ln(3/5)$
(4b) $x = \frac{\ln(1/5)}{3}$
(4c) No solution
(4d) $x = \frac{e^2-5}{3}$
(4e) $x = 0$