**Math 05, Homework 6 on Sections 5.2 - 5.3**

---

Write all your working out and answers on your own notepaper - no need to write the questions. Please use lots of space.

It is very important that you show clearly any work you had to do to get your answers. Just writing the answer down with no work shown is not enough. All 18 questions are worth 2 points each.

---

Do these first 10 questions and *check that your answers match the solutions on page 2*. If you don't get the same answers then try to fix them by looking at your notes or the book or asking me. Only do the last eight questions when you are sure you understand the first ten.

**(1)** Graph the line:   $y = 4x - 2$

**(2)** Is the point $(2, 3)$ on the line $y = 2x - 1$?

**(3)** Find the slope of the line between the two points:  $(-2, 3)$  and  $(1, 3)$

**(4)** Find the slope and $y$-intercept of the line:   $4x + 3y = 2$

**(5)** Show that the two lines $y = -2x + 1$ and $y = \frac{1}{2}x + 3$ are perpendicular.

**(6)** Find the equation of the vertical line through the point:   $(-2, 3)$

**(7)** Find the slope-intercept equation of the line through the point $(-1, 1)$ with slope $6$.

**(8)** Find the slope-intercept equation of the line through the points: $(3, 2)$ and $(2, 1)$

**(9)** Is $(x, y) = (3, -2)$ a solution to $3x + y \leqslant 10$ ?

**(10)** Graph the solution set to the inequality $x - y \leqslant 2$.

---

Eight more questions[1]. Show clearly all your working out and reasoning.

**(11)** Graph the line:   $3x + y = 3$

**(12)** Find the slope of the line between the two points: $(-1, 1)$ and $(2, -1)$

**(13)** Find the slope and $y$-intercept of the line:   $5x + 6y = 12$

**(14)** Show that the two lines $x + 2y = 3$ and $x + 2y = 4$ are parallel.

---
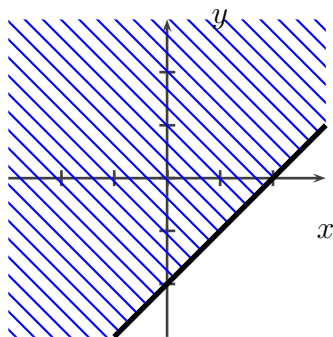
[1]

**(15)** Find the equation of the horizontal line through the point:   $(7, 3)$

**(16)** Find the slope-intercept equation of the line through the point $(-2, -1)$ with slope 2.

**(17)** Find the slope-intercept equation of the line through the points: $(3, 2)$ and $(1, -2)$

**(18)** Graph the solution set to the inequality $-x + 2y \geqslant 4$.

---

**Answers to questions (1)-(10):**
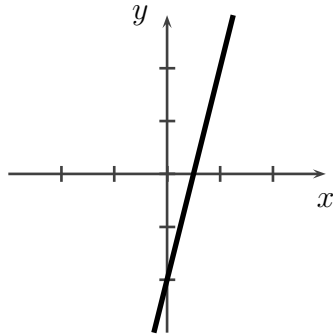
*(1)*



*(2)* Yes

*(3)* The slope is $0$.

*(4)* The slope of the line is $-\dfrac{4}{3}$ and the $y$-intercept is $(0, 2/3)$.

*(5)* The slope of the first line is $-2$ and the slope of the second line is $\dfrac{1}{2}$. The lines are perpendicular since these numbers are negative reciprocals of each other. (Another way to check they are perpendicular is to see that the product $(-2)(\dfrac{1}{2})$ equals $-1$.)

*(6)* The vertical line through $(-2, 3)$ has equation $x = -2$.

*(7)* $y = 6x + 7$

*(8)* $y = x - 1$

*(9)* Yes it is a solution

*(10)*