

Mth 28.5, Homework 3 on sections 3.1, 3.5

Due by Wed, Sept 25.

Try these 13 questions. Write all your working out and answers by hand on your own notepaper and hand them to me next week. Please use lots of space and as many pages as you want, so I can include corrections or comments - otherwise I will ask you to redo it. You do not need to write the questions, but it is very important that you show clearly any work you had to do to get your answers. Each question is worth 2 points for a total of 26.

Section 3.1 Graphing linear equations

- (1) Draw the x and y axes and mark off the integers -4 to 4 on both. Then plot these:
- (a) The point $(3, 1)$
 - (b) The point $(-4, 3)$
 - (c) The point $(0, -2)$
- (Hint: the first number is the x coordinate – go left and right, the second is the y coordinate for up and down.)
- (2) Graph the equation $y = 3x - 2$ by plotting the three points corresponding to $x = -1$, $x = 1$ and $x = 2$, then drawing the straight line through them. For this draw the x and y axes with neatly marked off numbers.
- (3) Graph the equation $y = \frac{1}{2}x + 1$ by plotting three points. (A good idea here to choose some even x s.)
- (4) Graph the line $y = -2$. Is this a horizontal or a vertical line?
- (5) For the line $2x + 3y = 6$,
- (a) Find its x intercept (to do this put $y = 0$ in the equation and solve for x).
 - (b) Find its y intercept (to do this put $x = 0$ in the equation and solve for y).
 - (c) Plot these intercepts and graph the line going through them.
- (6) Graph the line $x + y = 4$ using its intercepts, as in the last question. Fill in the table:

x	y
0	
	0

- (7) Graph the line $-x + 2y = -4$ using its intercepts. Fill in the same table.
- (8) What is unusual about the y intercept of the vertical line $x = 3$?

Section 3.5 Relations and functions

- (9) For a function f we have $f(3) = 10$. Identify the input and the output.
- (10) Evaluate $f(4)$ if $f(x) = -3x + 5$.
(Hint: just replace all the x s by 4 and work out the number.)
- (11) The function g is given by $g(x) = x^2 - x + 2$.
- (a) Evaluate $g(0)$
 - (b) Evaluate $g(1)$
 - (c) Evaluate $g(5)$
- (12) The function h is given by $h(x) = \frac{2x - 1}{x + 2}$.
- (a) Evaluate and simplify $h(0)$
 - (b) Evaluate and simplify $h(3)$
 - (c) Evaluate and simplify $h(-7)$
- (13) If f is the function $f(x) = 4x - 3$ then evaluate and simplify $f(x + 2)$.
(Hint: now replace all the x s by $x + 2$. Your answer will be an algebraic expression, not just a number.)
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If you get stuck on a question or aren't sure if you understand it:

- Go over the relevant class notes and section in the textbook.
- Check if you get the right answer for a similar odd-numbered question in the textbook (answers at the back of the book).
- Ask me about it after class.
- Come to my office hours: Mon 12:00 - 1:00, Wed 12:00 - 1:00 in CP 317.
- Go to the Math Tutorial Lab in-person in CP 303 or online.