MCS Assignment 2018-19 LaTeX template

abcd12

November 24, 2018

1 Discrete Mathematics and Linear Algebra

1.1

Inductive proof, so mostly text. Text is just written as normal, if you want to include maths notation in line you use the $ symbol we $n \geq 1$. If you use $$ it will go on a separate line.

$$2(\sqrt{n+1}-1) < 1 + \frac{1}{\sqrt{2}} + ... + \frac{1}{\sqrt{n}} < 2\sqrt{n}$$

1.2

You might want some Greek letters eg σ and Σ or maybe to square things $a^2 = b^2 + c^2$-

1.3

Some answer for q3

1.4

GRAPHS

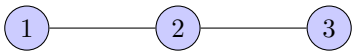


Figure 1: P_3

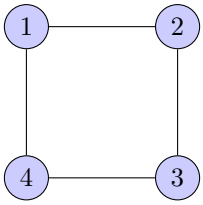


Figure 2: C_4

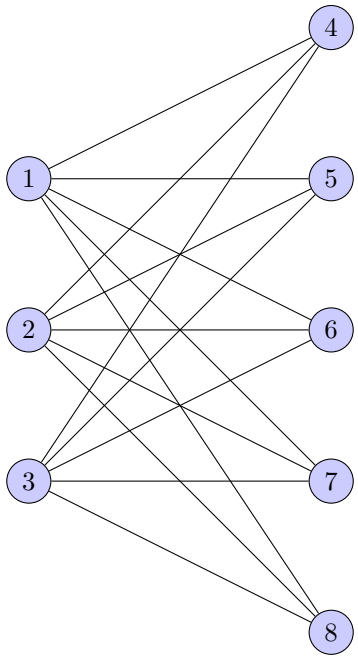


Figure 3: $K_{3,5}$

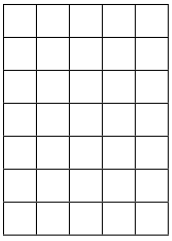
The graph in figure**??** is P_3, i.e. a path on 3 nodes.
The graph in figure**??** is C_4. i.e. a cycle on 4 nodes.
The graph in figure**??** is $K_{3,5}$, i.e. the complete bipartite graph with sets of size 3 and 5.

2 Logic and Discrete Structures

2.1

$\varphi = ((a \wedge b) \implies c) \wedge (a \vee b)$

2.1.1



2.1.2

Since I've not used it yet: $\neg\varphi$

2.2

$\{\wedge, \oplus\}$ where $p \oplus q \equiv \neg(p \iff q)$

2.3

$p \vee (q \wedge r) \vdash p \vee q$

1.	$p\vee$ (q $\wedge$ r)	Premise
2.	p	Assumption
3.	$p\vee$ q	$\vee_i$, 2
4.	$q\wedge$ r	Assumption
5.	q	$\wedge_e$, 4
6.	$p\vee$ q	$\vee_i$, 5
7.	$p\vee$ q	$\vee_e$, 1, 2–3, 4–6

2.4

I guess y'all need another subsection anyway