CSC165H1 Problem Set 0

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Question 2

- CSC165H1 S Mathematical Expression and Reasoning for Computer Science Francois Pitt
- CSC148H1 S Introduction to Computer Science Jonathan Calver
- MAT224Y1 Y Linear Algebra II Soheil Homayouni-Boroojeni
- MAT246H1 S Concepts in Abstract Mathematics Soheil Homayouni-Boroojeni
- COG250 Introduction to Cognitive Science John Vervaeke

Question 3

Let

$$S_1 = \{A, B, C, D, E\}$$

$$S_2 = \{H, F, D, B\}$$

$$S_3 = \{B, E, H, K\}$$

So,

$$(S_1 \cup S_2) \setminus S_3 = \{A, C, D, F\}$$

Question 4

p	q	r	$(p \wedge q) \implies (\neg p \wedge r) \vee \neg(q \wedge r)$
F	F	F	T
F	F	T	T
F	T	T	T
F	T	F	T
T	T	T	F
T	T	F	T
T	F	F	T
T	F	T	T

Question 5

Assume $\exists K \in Z^+$

$$\begin{aligned} 3^{165x-1} &= \left(\sqrt{K}\right)^x \\ (165x-1)\log_3 3 &= \frac{x}{2}\log_3 K \\ 165x - \frac{x}{2}\log_3 K &= 1 \\ x\left(165 - \frac{1}{2}\log_3 K\right) &= 1 \\ x &= \frac{1}{165 - \frac{1}{2}\log_3 K} \end{aligned}$$