CSC165H1: Problem Set 0
Due Wednesday September 20 before 10 pm

- CSC108H1 F(Fall) Introduction to Computer Programming LEC 0401 Thomas Fairgrieve
- CSC165H1 F(Fall) Mathematical Expression and Reasoning for Computer Science LEC 0101 Daniel Heap
- MAT223H1 F(Fall) Linear Algebra 1 LEC0401 TUT0307 Sean Uppal
- MAT137Y1 Y(Full Session) Calculus LEC0101 TUT0202 Alfonso Gracia-Saz
- SPA100Y1 Y(Full Session) Spanish for Beginners LEC5201 Jose Eduardo Villalobos Graillet

3. Since S_1 be the set of all even positive integers, S_2 be the set of all integers less than 15
$S_1 \backslash S_2 = \{x | \frac{x}{2} \in \mathbb{Z} \; and \; x > 15\}$

4.

p	q	s	p∧ q	(p∧ q) ⇒ s
T	F	F	F	T
T	F	T	F	T
T	T	F	T	F
T	T	T	T	T
F	F	F	F	T
F	F	T	F	T
F	T	F	F	T
F	T	T	F	T

5.

Since n is positive,

$$3^{x-2} = n^x$$

$$\frac{3^x}{9} = n^x$$

$$3^x = n^x \times 9$$

$$(\frac{3}{n})^x = 9$$

$$\mathrm{x} = \log_{\frac{3}{n}} 9$$

$$\mathrm{x} = 2\log_{\frac{3}{n}} 3$$

$$\mathrm{x} = 2 \times \frac{\log_{10} 3}{\log_{10} \frac{3}{n}}$$

$$x = 2 \times \frac{\log_{10} 3}{\log_{10} 3 - \log_{10} n}$$

$$x = 2 \times \frac{1}{1 - \frac{\log_{10} n}{\log_{10} 3}}$$

$$x = 2 \times \frac{1}{1 - \log_3 n}$$

$x = \frac{2}{1-\log_3 n}$ and this is the answer.

By Xinyi Ji