

Name:..... Student Number:.....

**Q1:** Construct the truth table for the following statement:  $\neg p(p \wedge \neg q) \rightarrow (\neg p \vee r)$ .  
(4 marks)

**Q2:** Using logic laws, show that  $p \wedge \neg[q \rightarrow (p \vee r)]$  is a contradiction. (3 marks)

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**Q3:** Let  $x, y$  and  $z$  be three real numbers, use a direct proof to show that  
if  $x < 2$  ,  $y < 3$  and  $z > -2$  then  $5x + 3y - 4z < 27$ . (3 marks)

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