**Math 231 – HW 4 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Epp 2nd Ed. 2.3 2, 5 – 9, 11 – 14, 20, 21, 22, 26, 28.

(2) If an integer n equals 2k and , then n is even.

 and 0 is an integer.

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(5) All healthy people eat an apple a day.

Harry does not eat an apple a day.

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(6) If a program is correct, then compilation does not produce error messages.

Compilation of this program produces error messages.

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|  |  | Valid or Invalid? | Justify your answer!   * Summarize the argument using symbols. | * If the argument is valid, say if it is by the conditional or the contrapositive. * If it’s invalid, say if it is the inverse error or the converse error. |
| (7) | All healthy people eat on apple a day.  Helen eats an apple a day.  Helen is a healthy person. |  | Let H(x): healthy, and A(x): eats apples. |  |
| (8) | All freshmen take writing.  Caroline is a freshman.  Caroline must take writing. |  | Let F(x): is a freshman, and W(x): takes writing. |  |
| (9) | All healthy people eat on apple a day.  Herbert is not a healthy person  Herbert does not eat an apple a day. |  | Let H(x): healthy, and A(x): eats apples. |  |

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| (11) | All cheaters sit in the back row.  George sits in the back row.  George is a cheater. |  | Let C(x): is cheater, and B(x): sits in back row. |  |
| (12) | All honest people pay their taxes.  Darth is not honest.  Darth does not pay his taxes. |  | Let H(x): honest, and T(x): pays taxes |  |
| (13) | For all students x, if x studies discrete math, then x is good at logic.  Dawn studies discrete math.  Dawn is good at logic. |  | Let D(x): discrete math, and G(x): good at logic |  |
| (14) | If compilation produces error messages, then the program is not correct.  Compilation of this program did not produce error messages.  Program is correct. |  | Let E(x): errors, and C(x): correct. |  |

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|  |  | Valid or Invalid? | Justify your answer!   * Summarize the argument by drawing a diagram. | * If the argument is invalid, explain why. |
| (20a) | All dogs are carnivorous.  Felix is not a dog.  Felix is not carnivorous. |  |  |  |
| (20b) | , if P(x), then Q(x).  for a particular a. |  |  |  |
| (21) | All people are mice.  All mice are mortal.  All people are mortal. |  |  |  |
| (22) | All discrete math students can tell valid from invalid.  All thoughtful people can tell valid from invalid.  All discrete math students are thoughtful. |  |  |  |
| (26) | Nothing intelligible ever puzzles me.  Logic puzzles me.  Logic is unintelligible. |  |  |  |

Now do problem 28. Write down the clues in order, and write down your intermediate conclusions.

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