

**Worksheet Exercise 4.5.C.**

Name \_\_\_\_\_

Deductions with C.P. and I.P.

Class \_\_\_\_\_ Date \_\_\_\_\_

**Part C.** Give deductions for the following arguments. These are more difficult.

#9)

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|--|-------|
| 1. $(\forall x)[Ax \supset (Bx \ \& \ Cx)]$                  | Prem  |
| 2. $(\exists x)Dx \supset (\exists x)Ax$                     | Prem  |
| $\therefore (\exists x)(Cx \ \& \ Dx) \supset (\exists x)Bx$ | Concl |

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#10)

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|--|-------|
| 1. $(\forall x)[(Ax \ \vee \ Bx) \supset (Cx \ \& \ Dx)]$    | Prem  |
| 2. $(\forall x)Cx \supset (\forall x)Ex$                     | Prem  |
| $\therefore (\forall x)Ax \supset (\forall x)(Ax \ \& \ Ex)$ | Concl |

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#11)

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|---|-------|
| 1. $(\forall x)Ax \ \vee \ (\forall x)Bx$                         | Prem  |
| 2. $(\forall x)(Ax \supset Cx)$                                   | Prem  |
| $\therefore (\exists x)(Ax \ \& \ \sim Bx) \supset (\forall x)Cx$ | Concl |

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#12)

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|--|-------|
| 1. $(\forall x)[Ax \supset (Bx \ \& \ Cx)]$  | Prem  |
| 2. $(\forall x)[(Bx \ \& \ Dx) \supset Ex]$  | Prem  |
| $\therefore (\forall x)\sim Ex \supset [(\forall x)Dx \supset (\forall x)\sim Ax]$ | Concl |

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