**B2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| P | Q | (Q | & | P) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**B1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| P | Q | (P | & | Q) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**C2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A | B | (B | & | A) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**C1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A | B | (A | & | B) |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**D2**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| P | Q | ((P | & | Q) | & | (Q | & | P)) |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

**D1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| P | Q | (P | & | ~ | Q) |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**D3**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| P | Q | ((P | ⭢ |  | Q) | & | ~ | Q) |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

**D4**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| P | Q | (~ | P | & | ~ | Q) |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

**E1**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| P | Q | (((P | ⭢ | Q) | & | ~ | Q) | ⭢ | ~ | P) |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

**E2**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| P | Q | ~ | (P | & | Q) |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**E4**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| P | (P | & | ~ | P) |
|  |  |  |  |  |
|  |  |  |  |  |

**E3**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| P | Q | ~ | (~ | P | ⭢ | ~ | Q) |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

**F2**

|  |  |  |  |
| --- | --- | --- | --- |
| P | (P | ⭢ | P) |
|  |  |  |  |
|  |  |  |  |

**F1**

|  |  |  |
| --- | --- | --- |
| P | ~ | P |
|  |  |  |
|  |  |  |

**F3**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| P | Q | ~ | (P | ⭢ | Q) | (~ | P | ⭢ | ~ | Q) |
|  |  |  |  |  |  |  |  |  |  |  |
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**F4**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| P | Q | (P | ⭢ | ~ | Q) | (~ | Q | ⭢ | ~ | P) |
|  |  |  |  |  |  |  |  |  |  |  |
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**G1**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| P | Q | ~ | (P | & | Q) | (~ | P | & | ~ | Q) | ~ | (P | ⭢ | Q) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| (P | & | ~ | Q) | (~ | P | & | Q) | ~ | (~ | P | ⭢ | ~ | Q) |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |

CONTINUED

BELOW →

G1

CONTINUED →