24. $c_1 c = a \cdot c + (-b) \cdot c$ (Transitivity of eq on 22, 23)

25. $((-1) \cdot b) \cdot c = (-b) \cdot c$ (Substitution of eq on 6)

26. $((-1) \cdot b) \cdot c = (-1) \cdot (b \cdot c)$ (M2) 27. $(-1) \cdot (b \cdot c) = ((-1) \cdot b) \cdot c$ (Symmetry of eq on 26)

28. $(-1) \cdot (b \cdot c) = (-b) \cdot c$ (Transitivity of eq on 27, 25)

29. $a \cdot c + (-1) \cdot (b \cdot c) = ac + (-b) \cdot c$ (Substitution of eq on 28)

30. $a \cdot c - b \cdot c = a \cdot c + (-1) \cdot (b \cdot c)$ (Defn. of subtraction)

31. $a \cdot c - b \cdot c = a \cdot c + (-b) \cdot c$ (Transitivity of eq on 30, 29)

32. $a \cdot c + (-b) \cdot c = c_1 \cdot c$ (Symmetry of eq on 24)

~~33. $a \cdot c - b \cdot c =$~~

33. $a \cdot c = c \cdot a$ (M1) 34. $a \cdot c + (-b) \cdot c = c \cdot a + (-b) \cdot c$ (Substitution of eq on 33)

35. $(-b) \cdot c = c \cdot (-b)$ (M1) 36. $c \cdot a + (-b) \cdot c = c \cdot a + c \cdot (-b)$

---

22. $c \cdot c_1 = c \cdot (a + (-b))$ (Substitution of eq on 5)

23. $c \cdot (a + (-b)) = c \cdot a + c \cdot (-b)$ (D) 24. $c \cdot c_1 = c \cdot a + c \cdot (-b)$ (Transitivity of eq on 22, 23)

25. $c \cdot ((-1) \cdot b) = c \cdot (-b)$ (Substitution of eq on 6)

26. $(c \cdot (-1)) \cdot b = c \cdot ((-1) \cdot b)$ (M2) 27. $(c \cdot (-1)) \cdot b = c \cdot (-b)$ (Transitivity of eq on 26, 25)

28. $(-1) \cdot c = c \cdot (-1)$ (M1) 29. $((-1) \cdot c) \cdot b = (c \cdot (-1)) \cdot b$ (Substitution of eq on 28)

30. $((-1) \cdot c) \cdot b = c \cdot (-b)$ (Transitivity of eq on 29, 27)

31. $((-1) \cdot c) \cdot b = (-1) \cdot (c \cdot b)$ (M2) 32. $(-1) \cdot (c \cdot b) = ((-1) \cdot c) \cdot b$ (Symmetry of eq on 31)

33. $(-1) \cdot (c \cdot b) = c \cdot (-b)$ (Transitivity of eq on 32, 30)

34. $c \cdot a + (-1) \cdot (c \cdot b) = c \cdot a + c \cdot (-b)$ (Substitution of eq on 33)

35. $c \cdot a - c \cdot b = c \cdot a + (-1) \cdot (c \cdot b)$ (Defn. of subtraction)

36. $c \cdot a - c \cdot b = c \cdot a + c \cdot (-b)$ (Transitivity of eq on 35, 34)

37. $c \cdot a + c \cdot (-b) = c \cdot c_1$ (Symmetry of eq on 24)

38. $ca - cb = c \cdot c_1$ (Transitivity of eq on 36, 37)

39. $\because c \in P$ (by 21) and $c_1 \in P$ (by 2), $c \cdot c_1 \in P$ (2.1.5.(ii))

40. $\therefore ca - cb \in P$ and by defn 2.1.6(a), $ca > cb$

(Contd. later)