Worksheet Exercise 2.4.B.
Calculating truth-values

Name _____
Class _____ Date _____

Part B. Use the Tree Method to determine the values of the following compound sentences. Do not skip any steps: show your work for <u>every</u> sub-calculation that you make. You are not allowed to use any rules other than the rules for calculating truth-values. The capital letters have the indicated meanings and real-world values.

A = Amsterdam is a city
C = Cairo is a city
M = Morocco is a city
R = Russia is a city

A	C	M	R
T	T	F	F

1. ~A V M
2. R & ~M
3. C ≡ ~M
4. C & (A V R)
5. C ⊃ (R V M)
6. (A & R) ⊃ M
7. ~A V ~M
8. ~R ⊃ ~C
9. R ≡ ~(~C)
10. (M ⊃ ~R) & A
11. A V (M & ~R)
12. (C V R) ≡ ~M
13. (M & A) V (C V ~R)
14. (A ⊃ R) V (A ⊃ ~R)
15. ~(A & R) ⊃ (C & M)
16. ~A V [(M ⊃ C) V R]
17. (~A V ~R) ⊃ (A V ~M)
18. ~{A V [M ⊃ (C V R)]}

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19. ~((A ≡ ~A) & C) ⊃ (~M & ~(M & R))

20. ((~A ⊃ M) ⊃ (A ⊃ R)) ⊃ ((C ≡ M) ⊃ ~C)

21. ~(~A & ~(~M & ~C)) ≡ (A V (M V C))

22. (((C ≡ M) ≡ R) ≡ ~R) ≡ (C ≡ ~M)