ASE 2020-21 Novice Notes

Lecture Notes by Dylan Yu

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Contents

§ 1 Sunday, 08/16/20

Today's lesson covered more *problem-oriented* ideas rather than *topic-oriented*. In other words, we did problems! The following is some NS practice, and while I cannot give you the MathLeague and TMSCA questions, the ML was 12025 and the TMSCA was Elementary Number Sense #5.

§ 1.1 Number Sense: Multiplication Problems

1. $12 \times 14 \times 16 =$ _____
2. $21 \times 31 \times 41 =$ _____
3. $13 \times 15 \times 17 =$ _____
4. $14 \times 16 \times 28 =$ _____
5. $146 \times 5 \times 154 =$ _____
6. $22 \times 25 \times 28 =$ _____
7. $83 \times 87 \times 91 =$ _____
8. $43 \times 47 \times 51 =$ _____
9. $\mathbf{27} \times \mathbf{29} \times \mathbf{31} \times \mathbf{33} =$ _____

10. $23 \times 33 \times 43 =$ _____

11. $29 \times 127 + 31 \times 213 =$ _____

12. $41 \times 44 \times 47 =$ _____

13. $31 \times 42 \times 53 =$ _____

14. $22 \times 44 \times 66 =$ _____

15. $39 \times 40 \times 41 =$ _____

16. $\sqrt[3]{1329} \times \sqrt{171} \times 15 =$ _____

17. $42 \times 48 \times 45 =$ _____

18. $\mathbf{52 \times 55 \times 58} =$ _____

19. $18 \times 20 \times 22 =$ _____

20. $24 \times 34 \times 44 =$ _____

21. $80 \times 82 \times 84 =$ _____

22. $28 \times 30 \times 32 =$ _____

23. $66 \times 68 \times 70 =$ _____

24. $\mathbf{63 \times 65 \times 67} =$ _____

25. $41 \times 43 \div 51 \times 53 =$ _____

26. $67 \times 56 + 65 \times 76 =$ _____

27. $56 \times 45 + 54 \times 65 =$ _____

28. $\mathbf{112 \times 123 + 132 \times 121} =$ _____

29. $29 \times 11 + 31 \times 109 =$ _____

30. $75^2 \div 25^2 \times 50^4 =$ _____

31. $18^3 \times 15^3 \div 9^3 =$ _____

32. $50^5 \div 25^5 \times 5^5 =$ _____

33. $24^3 \times 21^3 \div 4^4 =$ _____

34. $21^3 \times 18^2 \div 9^3 =$ _____

35. $75^4 \div 50^3 \times 25^2 =$ _____

36. $\mathbf{24^2 \times 18^3 \div 6^4} =$ _____

You should be familiar with most of these tricks.