



Basic Algebra – Unit 2: Introduction to Number Lines, Signed Numbers, Fractions, Mixed Numbers and Order of Operations

Study Guide

Text: Introductory Technical Mathematics, 6th Edition

Note: Do “Odd” numbered problems only

1. Review course structure.
2. Read Unit 2, Common Fractions, 2-1 Definitions.
3. Read pages 42 to 44 and review all examples.
4. Do page 44, Exercise 2-5 #1-12.
5. Read pages 44-45, 2-6 on Expressing Mixed Numbers as Improper Fractions and 2.7, page 45, Expressing Improper Fractions as Mixed Numbers and review all examples of each.
6. Do page 45-46, 2-7 #1-30 for review.
7. Review 2.8: Division of Whole Numbers; Quotients as Mixed Numbers, page 46 and do Exercise 2-8 1-8.
8. Complete problems on Mixed Numbers found at:
https://www.khanacademy.org/math/arithmetic/fractions/mixed_numbers/v/changing-an-improper-fraction-to-a-mixed-number
9. Review page 46 Use of Common fractions in Practical Applications.
10. Do Exercise 2-9 page 47-48, #1-5 for review.
11. Watch YouTube video on Addition and Subtraction of Fractions at:
https://www.youtube.com/watch?v=lhPC3BgyI90&index=3&list=PLgtmo2gg-C6vZK_WFsYI1GEkl-zY0bJ8w
12. Read page 48-50, 2-10 Addition of Common Fractions and review all examples.
13. Do page 50 Exercises 2-10A # 7-9, # 15-19 and # 21-23; page 51 Exercises 2-10B # 9-13, and page 52, Exercise 2-10C #5-11 and page 53 # 13-23.
14. Read page 53-56 on Subtraction of Common Fractions and review all examples.





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15. Do Exercise 2-11A, page 54, 1-5, 2-11B, page 54, #1-7, 2-11C, # 1-3; page 55, #19-25 and page 56, 2-11D (all).
16. Review page 56 2-12 Examples Adding and Subtracting Common Fractions in Practical Applications and do pages 57-59 #3, 5, 7, 11, 13, and 15.
17. Watch YouTube video on Multiplying and Dividing Fractions found at:
https://www.youtube.com/watch?v=td5KaIQDWik&list=PLgtmo2gg-C6vZK_WFsYI1GEkl-zY0bJ8w&index=5
18. Read page 60-64, 2-13 Multiplication Common Fractions and review all examples.
19. Do exercises page 62, 2-13B, #1-11 and page 64, 2-13C, #5-13.
20. Review pages 64-67, 2-14 Examples of Multiplying Common Fractions in Practical Applications and do page 66-67, Exercise 2-14, #1, 5, 7, 9 and 11.
21. Read pages 67-70, 2-15 Division of Common Fractions and review all examples.
22. Do exercise 2-15A, #5-11, and 2-15B #7-15 for review.
23. Review page 70, 2-16 Dividing Common Fractions in Practical Applications and do Exercise 2-16, pages 70-72, #1, 5, 7, 9 and 11.
24. Read pages 73-75, 2-17 Combined Operations with Common Fractions and review all examples.
25. Do page 74-75, Exercises 2-17, #1-25 for review.
26. Review page 75, 2-18 Examples Combined Operations of Common Fractions in Practical Applications and do exercises on page 76: #1-5.
27. Complete problems on Fractions found at: <https://www.khanacademy.org/math/cc-third-grade-math/cc-3rd-fractions-topic/cc-3rd-fractions-intro/v/fraction-basics>
28. Read Unit 6, pages 183-184, 6-1 on Signed Numbers and review all examples.





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29. Do page 184 Exercises 6-1 #1-19 for review.
30. Read pages 183-184 on Signed Numbers and do Exercises 6-1 #1-9 for practice.
31. Complete problems on Adding and Subtracting Signed Numbers found at:
 - a. <https://www.khanacademy.org/math/in-sixth-grade-math/integers-india/subtraction-integers-number-line/v/adding-subtracting-negative-numbers>
 - b. and Multiplying and Dividing Signed Numbers found at:
<https://www.khanacademy.org/math/arithmetric/absolute-value/mult-div-negatives/v/multiplying-and-dividing-negative-numbers>
32. Read page 185 on The Number Line and do Exercises 6-2 #11-19, #33-37, and #49-55 for practice.
33. Complete problems on The Number Line found at: <https://www.khanacademy.org/math/pre-algebra/decimals-pre-alg/decimals-on-number-line-pre-alg/v/points-on-a-number-line>
34. Read page 186, 6-3 Operations Using Signed Numbers, and 6.4 Absolute Value, pages 186-187 and do practice Exercises 6-4 #7-15.
35. Read page 187-190 6-5 on Addition of Signed Numbers and do Exercise 6-5 #20-26 for practice.
36. Read page 191 Subtraction of Signed Numbers and do Exercise 6-6 #11-21 for practice.
37. Read pages 192-193, Multiplication of Signed Numbers and do Exercises 6-7 # 11-15 and #21-25 for practice.
38. Read page 193-194 Division of Signed Numbers and do Exercise 6-8, #7-15 and #21-23 as practice.
39. Read pages 195-197 on Powers of Signed Numbers and do Exercises 6-9, page197 #5-15, #19-21, and #27-31 as practice.
40. Read pages 198-200 on Roots of Signed Numbers and do Exercise 6-10, #1-9 and # 25-29 as practice.
41. Read pages 201-203 on Combined Operations of Signed Numbers and do Exercises 6-11, #1-5 and #11-19 as practice.





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42. Complete problems on Order of Operations found at: https://www.khanacademy.org/math/pre-algebra/order-of-operations/order_of_operations/v/introduction-to-order-of-operations
43. Read page 204 on Scientific Notation and do page 205 exercises 6-12A #1-9 and #17-21 and 6-12B #1-9 (on Expressing Decimal Numbers in Scientific Notation) and #17-21 (on Expressing Scientific Notation as Decimals) as practice.
44. Read pages 205-208 on Multiplication and Division Using Scientific Notation and do Exercises 6-12, #1-5, #9-13, #21-25, and #29-31 as practice.
45. Complete problems on Scientific and Engineering Notation found at: <https://www.khanacademy.org/math/pre-algebra/exponents-radicals/scientific-notation/v/scientific-notation-old>
46. Read pages 210-211 and do Exercise 6-13A (Expressing Decimal Numbers in Engineering Notation) #9-15 and #17-21; 6-13B (Expressing Engineering Notation as Decimal) #1-11 and Exercises 6-13C (Multiplication and Division Using Engineering Notation) #1-11 as practice.
47. Complete Unit Lab/Test in lab. See lab instructor.





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