

- c) 0.40 A
 5. 36 Ω
 6. 15 Ω
 7. a) 4.0 Ω ; 1.0 A
 b) 2.9 Ω ; 0.40 A

Example 13 Practice Problems

1. 600 W
 2. 180 min

Example 14 Practice Problems

1. \$37.80
 2. 2.1 kW

Section 13.3 Review

1. 6.67 A
 2. 19 Ω
 3. 2.0 W
 4. 0.080 ϵ ; 0.020 ϵ
 5. 41 ϵ
 6. 500 kW·h
 7. $\$2.4 \times 10^6$

Chapter 13 Review

1. b 2. e 3. a 4. c 5. c
 12. b) $2 \times 10^1 \Omega$
 13. d) 20 V/A or 20 Ω

Chapter 14

Section 14.1

- | | |
|------------|---------|
| 3. A north | B south |
| C south | D north |
| E north | F south |
| G north | H south |

7. time for magnetic reversal is 2.3×10^5 a

Section 14.2

Example 1 Practice Problems

1. 1.05×10^3 N
 2. 25 N

Section 14.2 Review

4. a) B
 b) D
 c) F
 d) G

5. a) Y to X
 b) X to Y
 c) X to Y
 d) Y to X
 8. 57 N
 9. 750 turns/cm

Chapter 14 Review

1. d 2. a 3. d 4. c 5. c 6. d 7. e
 13. 83 N
 14. 240 turns
 15. a) 150 N
 16. a) 7.5 A
 b) 1.20×10^4

Chapter 15

Section 15.1

Example 1 Practice Problems

1. 31 mN
 2. 0.26 B_1

Example 2 Practice Problems

1. 0.0180 Ω
 2. 0.120 Ω

Example 3 Practice Problems

1. 8.25 k Ω
 2. 87 Ω

Section 15.1 Review

3. 1.2 N
 4. a) 24.9 k Ω series resistor
 b) 96.15 m Ω shunt

Section 15.2

2. 12

Section 15.3

1. 500 Hz

Section 15.4

Example 5 Practice Problems

1. 300
 2. 12 mV

Example 6 Practice Problems

1. 4.8 cm/s
 2. 75 mV

Section 15.4 Review

4. 15 cm/s
 5. 160 mV
 8. a) i) A is north, B is south
 ii) C is north, D is south
 iii) F is north, E is south
 iv) H is north, G is south
 b) i) Y to X ii) Y to X
 iii) Y to X iv) X to Y

Section 15.5 Review

6. 200 Hz

Section 15.6

Example 7 Practice Problems

1. a) 480 V
 b) 0.10 A
 2. 50

Section 15.6 Review

2. $\frac{1}{4}$ cycle
 5. a) 6.00 kV
 b) 4.00×10^{-2} A
 6. 52
 7. b) 1500 W

Section 15.7

Example 8 Practice Problems

1. 1.0×10^7 W
 2. 1.00 kW

Section 15.7 Review

3. a) from 27.6 kV to 4.16 kV
 b) from 4.16 kV to 240 V
 4. a) 21 W
 b) 64 kW

Chapter 15 Review

13. 60 Hz
 17. 220 V

Unit 5 Review

1. b 2. b 3. b 4. e 5. d
 6. d 7. b
 18. 88%
 19. 2.0 m
 20. b) $I = 4.5V^{0.6}$