Mighty Physics Assignment Sheet with Answers

All work must be done IN INK.

Questions MUST be answered in complete sentences.

Problems are to be solved by SHOWING YOUR METHOD. The Hup, Two, Three, Four, Ex means explain. Di means draw a diagram.

Ch 1. Page 27

1. Ex
5. use tables 1-2, 1-3
12. 11 people
13. 1.08 X 10^9 Km
15. Ex
16a. 1
16b. 5
16c. 4
16d. 4
16e. 6
18a. 3.00 X 10^8 m/s
18b. 2.9979 X 10^8 m/s
18c. 2.997925 X 10^8 m/s
20a. 800 g
20b. 0.90 m/s
20c. 17.8 mm

Ch 2. Page 69

2. slope at each point
3a. slope = 0
3b. slope = positive
3c. slope = negative
4. Ex
6. Ex
7. Ex
8. 75.73 Km/h south
9. 19 Km/h east
11. 5.436 m/s
18. 0.00 m/s^2
Sketch prob 19:
19a. slope is zero
19b. slope is positive
19c. slope is negative
19d. slope is positive
22. +0.75 m/s^2
23. +8.6 m/s
24a. +6.5 m/s
24b. 5.0 s
36. Ex
40. -39.6 m/s
41a. +17.5 m/s
41b. 15.5 m

Ch 3. Page 113

1-5. Ex
6. Find Resultant only, Di
8-10 Di
22. 5 blocks at 50° N of E
23. 108 m, -19.1 m
27. 31.5 m, 26.4 m
30-31 Ex
33. vertical velocities are the same. Explain.
45-47. Ex
49a-b. Ex

Ch 4. Page 151

1-7 Ex
10. 1210 N at 62° above
11. Di
12. 4 N; 3 N
13-15. Ex
20. 55 N
21. 3.52 m/s^2
22 a & b. zero, Ex
26a. 770 N, 8.1° right
26b. 0.24 m/s, 8.1° right
33-39. Ex
40. 0 N, Ex
41-43. Ex
45a. 0.883 N
45b. 14.0 N
47a. zero
47b. 33.9 N

Ch 5. Page 193

1-3 Ex
7. 53 J; 53 J
8a. 6230 J
8b. -6230 J
10. 47.5 J
11-13. Ex
14. 1 to 25
15. Ex
16. 7.6 X 104 J
19a. -19.6 J
19b. 39.2 J
19c. 0 J
23-24 Ex
27. 7.34 m
32-33. Ex

Ch 6. Page 232

1-3. Ex
5-11. Ex
12a. 8.35 X 10^{-21} up
12b. 4.88 kg.m/s (change g to kg).
12c. 7.50 X10^2 kg.m/s right
12d. 1.78 X 10^{29} kg.m/s W
13. 46.0 m/s
15. 5.2 kg.m/s
17. 18 N
27-28 Ex
29a 2.43 m/s forward
29b. 7.97 X 10^{-2} m/s forward
37 14.5 m/s N

Ch 7. Page 269

1. 180°, 1/2 rev
2. rad, rad/s, rad/s^2
3-4. Ex
5a. 1.99 rad
5b. 0.79 rad
5c. $\pi/2$ rad
5d. π rad
6. 2.5 m, 140 m, 9.0 X 10^2 m
7. 0.105 rad/s, 0 rad/s^2
10. 0.042 rad/s^2

Ch 8. Page 305

1-8 Ex

10. 26 N•m
11. 220 N
13. c, c Ex
14. c Ex
15-17. Ex
21a. 1.20 Kg
21b. at the 0.593 mark

24. 328 N, 552 N
27-29. Ex
39. Ex
40. Ex
52-57. Ex
60. 1.3×10^{2} N

Ch 9, Page 343

1-5. Ex
7. Ex
9. 3.4×10^{-5} m^3
12a. 6.3×10^{3} Kg/m^3
15-20. Ex
21. 1.01×10^{11} N
26. 84 N
28-30. Ex
35-36. Ex
39. 3.000 times
47a. 1.0×10^{3} Kg/m^3
Hint: $Pa = N/m^2$ & $N = (Kg)(9.8m/s^2)$
47b. 3.5×10^{2} Pa
47c. 2.1×10^{3} Pa

Ch 10. Page 387

1-4. Ex
7-8 Ex
15. 35°C Ex
16. none, Ex
17. increase, Ex
22. 14 m
25-28. Ex
Boom Probs on $Q = mc\Delta t$ and expansion. On line.

Ch 11. Page 431

1-2. Ex
6-9. Ex
12. $\Delta U = Q - W$
14. Ex
23. Ex
26. Temp rises, Ex
32. Ex

Ch 12. Page 469

1-7. Ex
8. 14 N
9. 130 N/m
10. 580 N/m
12. twice. Ex
14. inversely
15. T = sq rt of 2. no change
17. Ex
18. Ex
20. Ex
21. 6.3 s, 0.16 Hz
24. 22.4 m
25. Ex
26. Ex & Di
27. Ex
28. Ex
29. Ex & Di
30. 1/3 s, 3 Hz
31. Ex
32. Ex & Di
33. Ex & Di
34. Ex
35. neither, Ex
36. Ex
37. Di & Ex
38. 1.73×10^{-15} s, 5.77×10^{14} Hz
39. 0.0333 m
40. Di
41. Ex
42. Ex
44. a = 1.28 m, b = 0.22 m
45. Ex
46. Ex
49. 2.0 Hz, 0.50 s, 0.30 m/s
50. 9.70 m/s^2
51. 446 m

HERE ENDETH THE FIRST SEMESTER

Ch 13. Page 507

1-9. Ex & Di
10. 2f, v is constant. Ex
11-12. Ex
15-18. Ex
20. Ex
25-26. Ex
28. 7.96×10^{-2} W/m^2
30. Di & Ex
31a. 4.0m
1b. 2.0m
31c. 1.3m
31d. 1.0m
32. Di & Ex
33. Ex
34. 3 Hz
36. Ex
38-39. Ex
44. Ex
45. 20m. 2×10^{-2} m.
46. 0.20 s
48. 5.0×10^{-7}m

Ch 14. Page 550

1-5. Ex
6. 1999+2(995)=2189
7. 3×10^{8} m/s
8-9. Ex
10. 1.00×10^{15} Hz, 7.50×10^{14} Hz
11. 3×10^{14} Hz
12. 3.02 m
13. 9.1×10^{-3} m (9.1 mm)
14-15. Ex
16. 2 m behind, M = 1, observes left. Ex
17-20. Ex & Di
21-33. Di & Ex
34a. -0.384, real, inverted
34b. -1.00, real, inverted
34c. 1.67, virtual, upright
35. p = 13 cm, M = -2.0

36.
$p = 4.1 \times 10^{2}$ cm,
f =32 cm,R =64 cm
37.
p = 6.1 cm, f = 2.6 cm, real
39. q = -15.8 cm, M = 0.295
42. -50, ex & Di
51. p = 11.3 cm

Ch 15, Page 587

1-9. Di & Ex
10. 30.3°
11. 26°
13. 51.9°
17-25. Di & Ex
26a. 40.0 cm
26b. -20 cm
28a. -13.3 cm
28b. -10.00 cm
28c. -6.67 cm
32. -80.0 cm
37. -41. Ex & Di
45. Di & Ex

Ch 16, Page 620

1-8. Ex & Di
9a. 589 nm
9b. 0.327°
9c. 0.491°
10. 0.08°
23-26. Ex

Ch 17, Page 654

1-2. Ex
3. 2.2×10^{13} electrons
4-16. Ex
18. 45 N
23. Ex
26. Ex
27. Di
28-30. Ex & Di
33. Ex
36. 5.4×10^{-14} N

Ch 18, Page 683

1-3. Ex
4. 8.03×10^{-7} J
7-9. Ex
13. 2.6×10^{4} V
17. -154 V
19. doubles, Ex
20-21. Ex
22. 4 times, Ex
23-24 Ex
25. 4 times, Ex
28. Ex
31. 4.000×10^{-6} F

Ch 19, Page 717

1-16. Ex
18. 3.0×10^{-3} A
19a. 1.9×10^{3} C
19b. 1.2×10^{22} electrons
20. 5.0 C
21-28. Ex
29. 0.20 A
30. 3.4 A
31. 30 W
32a. 1.8 A
32b. 4.5 A
32c. 0.45 A
33-36. Ex
37. 50.0 J
38. 3.6×10^{6} J
39-41. Ex
42. 0.62 A, 190 W
52a. 7.0×108 W
52b. 4.8×10^{7} W
52c. 6.9 %
56. 3.2×105 J
18a. 24 W

Ch 20, Page 754

1-3. Di & Ex
4. 12.0 V
6-15. Ex
16. 0.75 W
17. 30 V
18b. 1.0 A
18c. 1.0 A, 1.0 A, 1.0 A
18d. 4.0 V, 8.0 V, 12 V
19a. 2.2 W
19b. 11 A
19c. 6.0 A, 3.0 A, 2.0 A
19d. 24 V, 24 V, 24 V
20a. 33.0 W
20b. 132 V
20c. 4.00 A,4.00 A
21a. 2.99 W
21b. 4.0 A
21c. 0.67 A, 1.3 A, 2.0A
21d. 12 V, 12 V, 12 V
22-23. Ex
25. 15 W

Ch 21, Page 781

1-5. Ex
7-15. Ex
19-21. Ex
29. 3.0×10^{-11} N upward

Ch 22, Page 821

1-9. Ex & Di
16-21. Ex
23. Ex
23. Ex
29a. 2.4×10^{2} V
29b. 2.0 A
32-35. Ex
38a. step up Ex
38b. 48 turns
41. 11 turns

We shall do Ch 24 next, followed by Ch 23

Ch 24, Page 886

1. Ex
3. Ex
8-15. Ex

Ch 23, Page 856

1-9. Ex
14. 4.8×10^{17} Hz
15a. 2.49×10^{-5} eV
15b. 2.49 eV
15c. 24.9 eV
19-26. Ex
33. Ex
38. Ex
42. 1.0×10^{-5} Kg

Ch 25, Page 927

1-6 Ex
10-11. Ex
13-17, 20 Ex
26. 560 days,
30. Ex

Here Endeth the Assignments!