St Joseph's Preparatory School
Philadelphia, PA
AP Physics C – Homework – Mechanics

Chapter	2												
Due Date													
Text Questions	Page 29	2	3	4	5	6							
Text Problems	Pages 30 - 37	2	5	11	13	17	19	22	23	29	32	37	43
		45	51	52	53	55	61	63	95	105			

Chapter	4												
Due Date													
Text Questions	Pages 75 & 76	1	2	5	8	9	11	12					
Text Problems	Pages 76 - 86	1	3	10	20	22	27	31	37	41	45	47	48
		53	59	63	89	115	118	129	132	136			

Chapter	5												
Due Date													
Text Questions	Pages 106 - 107	1	3	8	10	11							
Text Problems	Pages 107 - 115	3	9	20	22	24	29	31	34	39	41	43	45
		50	51	53	64	75	78	97	99				

Chapter	6												
Due Date													
Text Questions	Pages 130 & 131	4	10	11									
Text Problems	Pages 131 – 139	7	13	15	17	21	26	27	28	30	45	47	49
		50	51	61	67	68	69	77	89	90	97	104	107

Chapter	7												
Due Date													
Text Questions	Pages 158 & 159	4	5	6	7	8							
Text Problems	Pages 159 – 165	5	24	32	35	39	40	50	51	70	71	74	77

Chapter	8												
Due Date													
Text Questions		2	3	5	8	9							
Text Problems		4	6	18	21	22	23	29	31	36	41	45	47
		52	53	59	62	64	68	71	104	127	129	134	136

Chapter	9												
Due Date													
Text Questions	Pages 227 & 228	1	3										
Text Problems	Pages 229 - 240	1	3	15	16	17	19	26	41	46	49	53	54
		59	63	73	80	103	108	109	110	111	131	135	137

Chapter	10												
Due Date													
Text Questions	Page 264	1	5	9									
Text Problems	Pages 265 - 274	16	28	30	31	47	54	59	61	64	67	69	79
		101	109	110	111	119	121						

Chapter	11												
Due Date													
Text Questions	Page 296	4	5	10									
Text Problems	Pages 297 – 304	7	8	47	48	59	60	76	95	101			

Chapter	12												
Due Date													
Text Questions	Pages 319 – 320	2	4	5	6								
Text Problems	Pages 321 - 329	8	9	13	14	19	25	28	31	50	53	55	56
		65	71										

Chapter	13												
Due Date													
Text Questions	Pages 350 – 351	1	10										
Text Problems	Pages 351 – 358	11	16	20	53	56	58	77	102				

Chapter	15												
Due Date													
Text Questions	Pages 403 – 404	1	2	3	5	10	12						
Text Problems	Pages 405 – 412	11	15	20	24	25	26	28	31	49	51	71	78
		80	85	86	96								

Answers to Even Numbered Problems

Chapter 2	
2:	5.554 s
22:	(a) 5.00 s; (b) 61.5 m
32:	(a) 15.0 m; (b) 94 km/h
52:	(a) 12.3 m/s

Chapter 4	
10:	*(a)* 56.6 m, *(b)* 45° N of W, *(c)* 1.89 m/s, *(d)* 45° N of W, *(e)* 0.471 m/s^2, *(f)* 45° N of E.
20:	*(a)* 0.495 s, *(b)* 3.07 m/s
22:	*(a)* 51.8 m, *(b)* 27.4 m/s, *(c)* 67.5 m
48:	(a) 0.94, (b) 19 m/s, (c) 2.4 km/s^2, (d) 50 ms
118:	36 s, no
132:	23 ft/s
136:	93° from the cars direction of motion.

Chapter 5	
20:	6.8 X 10^3 N
22:	(a) 5.5 kN; (b) 2.7 s; (c) 4.0; (d) 2.0
24:	(a) 566 N; (b) 1.13 kN
34:	(a) 7.3 kg; (b) 89 N
50:	(a) 466 N; (b) 527 N; (c) 931 N; (d) 1.05 kN; (e) 931 N; (f) 1.05 kN; (g) 1.86 kN; (h) 2.11 kN
64:	16 N
78:	(a) 65 N; (b) 49 N

Chapter 6	
26:	3.3 kg
28:	(a) 66 N; (b) 2.3 m/s^2
30:	(a) [-6.1 m/s^2]***i***; (b) [-0.98 m/s^2]***i***
50:	0.078
68:	(a) 1.05 N; (b) 3.62 m/s^2; (c) Answers are the same except that the rod is under compression.
90:	3.4 m/s^2
104:	(a) 0.13 N; (b) 0.12

Chapter 7	
24:	1.25 kJ
32:	25 J
40:	2.7 X 10^5 w
50:	(a) 0.29 J; (b) -1.8 J; (c) 3.5 m/s; (d) 23 cm
70:	(a) 797 w; (b) 0; (c) -1.55 kJ; (d) 0; (e) 1.55 kJ
74	(a) 6 J; (b) 6.0 J

Chapter 8	
4:	(a) 1.51 J; (b) -1.51 J; (c) 0; (d) -1.51 J; (e) 1.51 J; (f) 0; (g) same
5	(a) 184 J; (b) -184 J; (c) -184 J
18:	10 cm
22:	(a) No; (b) 930 N
36:	9.20 m
52:	0.15
62:	(a) 7.4 m/s; (b) 90 cm; (c) 2.8 m; (d) 15 m
64:	0.72 m
68:	(a) -3.8 kJ; (b) 31 kN
104:	(a) 12 m/s; (b) 11 cm
134 & 136	Answer not available.

Chapter 9	
16:	58 kg
26:	(a) 42 N•s; (b) 2.1 kN
46:	310 m/s
54:	33 cm
80:	1.10 m/s
108:	+4.4 m/s
110:	(a) 1.4 X 10^{-22} kg•m/s; (b) 28°; (c) 1.6 X10^{-19} J

Chapter 10	
16:	(a) 1.0 rev/s^2; (b) 4.8 s; (c) 9.6 s; (d) 48 rev
28:	16 s
30:	(a) -1.1 rev/min ; (b) 9.9 X 10^3 rev; (c) -0.99 mm/s^2; (d) 31 m/s^2
54:	(a) 1.7 m/s^2; (b) 6.9 m/s^2
64:	(a) 0.15 kg-m^2; (b) 11 rad/s
110:	(a) $a + 3bt^2 - 4ct^3$ (b) $6bt - 12ct^2$

Chapter 11	
8:	(a) 37.8 c; (b) 0.0196 N (c) toward the loop's center
48:	(a) 4.2 rad/s; (b) No – energy is transferred to the cockroach's internal energy.
60:	32°
76:	(a) 0.333; (b) 0.111

Chapter 12	
8:	(a) 2.77 kN; (b) 3.89 kN
14:	(a) 49 N; (b) 28 N; (c) 57 N; 29°
28:	(a) $\frac{Wx}{L\sin\theta}$; (b) $\frac{Wx}{L\tan\theta}$; (c) $W\left(1-\frac{x}{L}\right)$
50:	(a) $2mg$; (b) mg ; (c) mg; (d) $\sqrt{2}mg$
56:	No solution published.

Chapter 13	
16:	(a) 17 N; (b) 2.4
20:	(a) $\frac{G(M_1+M_2)m}{a^2}$; (b) $\frac{GM_1m}{b^2}$; (c) 0
56:	(a) 1/2; (b) 1/2; (c) B; (d) 1.1×10^8 J
58:	(a) -6.33×10^9 J; (b) -6.33×10^9 J; (c) falling
102:	2R

Chapter 15	
20:	(a) 25 cm; (b) 2.2 Hz
24:	54 Hz
26:	18.2 Hz
28:	(a) 200 N/m; (b) 1.39 kg; (c) 1.91 Hz
78:	(a) 1.6 ×104 m/s^2; (b) 2.5 m/s; (c) 7.9 ×103 m/s^2; (d) 2.2 m/s
80:	(a) 2.1×10^4 N/m; (b) 1.5×10^4 N/m; (c) 3.1×10^2 Hz; (d) 2.6×10^2 Hz
86:	3.5 s
96:	(a) 62.5 mJ; (b) 31.3 mJ