**P7 Gravitation**

**P7.1**

**Pre-Reading Exercise**

1. In circle, the two foci of ellipse merges into one and the semi-major axis becomes the radius of circle.
2. Perihelion, Aphelion.
3. Variable
4. True
5. ; is in degrees.
6. force is attractive

**In-Class Exercise**

1. with positive x-axis
2. 8.5 hrs
3. C, D
4. B

**Homework**

1. days
2. at with positive x-axis.
3. a) Particle has to be closer to

b) Unchanged

c) NO

1. Earth days
2. days
3. ; No, it does not depend on
4. should be in second quadrant and near axis.
5. a) Positive direction

b) Resultant will shift towards line and when becomes zero i.e.

1. M=2m
2. coordinate

coordinate

**P7.2**

**Pre-Reading Exercise**

1. Vector
2. A, B and D
3. i) ;

ii) ;

**In-Class Exercise**

1. ;
2. a)

b)

1. a) 0

b)

c)

**Homework**

1. a) radially inwards

b)

1. from 10000 kg mass.
2. -180 J
3. Graph
4. a)

b)

c)

2. ] ; Towards the particles just opposite to it
3. a)

b)

1. A) Zero

B)

C)

1. None
2. A)

B)

C)

**P7.3**

**Pre-Reading Exercise**

1. True
2. Negative
3. True
4. B
5. B

**In-Class Exercise**

1. 1/2
2. a) ; b)
3. a) ; b) 4

**Homework**

1. a)

b)

c)

1. a)

b)

4. a) ;

b)

1. a)

b)

1. a)

b)

1. a) 7000 km from the surface of asteroid

b)

1. a)

b)

1. a) *J*

b) Less than before

c) W is positive

d) W is negative

1. a)

b)

c)

d)

1. a)

b)

**P7.4**

**Pre-Reading Exercise**

1. C
2. 11.2
3. 9.8

**In-Class Exercise**

1. a) ; b) ; c) ()

**Homework**

3. 0.9965 kg

b)

2. .

b)

c)

d)

b) 6 hour

1. .
2. a)

b) 2R

c)

1. b)

c)

**P7.5**

**Pre-Reading Exercise**

1. Accelerated
2. True
3. False
4. True
5. False
6. Geostationary
7. Weight

**In-Class Exercise**

1. a)

b) 1/2

c)

d)

1. a)

b)

1. a)

b)

c)

d)

1. a)

b)

c)

d)

e)

f)

g)

h)

1. a)

b)

c)

d)

1. a)

b)

**Homework**

1. a)

b) Energy required to lift

1. a) years

b)

1. rad/s
2. a) m

b)

c)

1. a)

b)

1. a) m/s

b)

c)

d)

e)

f) N

g) No

h) Yes

1. a)

b)

c)

d)

e)

f)

g) Having ignored the accelerated motion of “our” frame.

1. a)

b)

c) Fall toward the Earth’s centre.

1. a)

b)

c)

d)

e)

f)

g)

h)

i) Later orbit has smaller period.

1. a)

b) Deadly

c)

d)

**Miscellaneous Objectives**

1. D
2. B
3. C
4. A
5. C
6. C
7. B
8. D
9. D
10. C
11. B
12. A
13. C
14. C
15. C
16. B
17. D
18. D
19. C
20. A
21. A
22. C
23. B
24. B
25. A
26. B
27. B
28. C
29. A
30. D
31. B
32. C
33. A
34. B
35. A,B,D
36. A,B,C
37. A,B,C,D
38. D
39. B
40. B
41. B
42. D
43. B
44. B
45. AQ

BT

CR

DS

1. AR

BQ

CQ

DP

1. AP

BQ

CQ

DQ

1. 2
2. 7
3. 3
4. 4
5. 1