Review 1 – all answers for *g* = 10 m/s2

**accelerated motion graphs**

 1. 600 m 14. ≈ +24 m/s

 2. 447 m 15 -6 m/s2 25. B

 3. 1 m/s 16. ≈ -24 m/s 26. C

 4. 0.745 m/s 17. -6 m/s227. D

 5. 15 m/s2 18. +36 m/s2 28. A

 6. +20 m mark 19. -6 m/s2 29. C

 7. -52 m mark 20. +18 m/s 30. H

 8. 1.5 m/s2 21. +108 m 31. C

 9. 14 m/s 22. +6 m/s 32. C

10. 9.8 m 23. 6 s 33. C

11. 19.2 m 24. D

12. 1.96 s

13. 10.4 m/s downward

Review 2 – all answers for *g* = 10 m/s2

**Newton’s laws &**

**two-dimensional motion, etc gravitation**

 1. B, C 1. NET F = zero for a & e

 2. F 2. 100 N left

 3. 3.46 s 3. 11.1 m/s2

 4. 125 m 4. 200 N

 5. +20 m/s 5. north

 6. –*g* or -10 m/s2 6. 100 N

 7. 4 s 7. 10 kg, 40 N upward, 240 N

 8. 20 m 8. 12 N up ┴ to surface

 9. same, same, same, same 9. 30 N right

10. same, increase, same, same 10. twice

11. increase, increase, same, same 11. equal to

12. 5 m/s2 12. zero

13. 15 N 13. 90 N

14. C 14. 120 N

15. D 15. D

 16. A

Review 3 – all answers for *g* = 10 m/s2

**momentum & impulse energy, power & work**

 1. 300 kgm/s 1. 1500 J

 2. +20 kgm/s 2. 480 J

 3. All four are correct. 3. a & d – at lowest point

 4. -4 kgm/s b & c – at highest point

 5. -4 N●s 4. 4000 N/m

 6. 0.5 kg 5. 600 N

 7. 28 N upward 6. B

 8. 3 m/s 7. E

 9. 0.31 m/s north 8. 50 N

10. -12 m/s 9. 0.45 m

11. -36 kgm/s 10. 25000 J

12. -36 N●s 11. 625 W

13. 2.4 s 12. 90 J

13. 90 J

14. 0.63 m

15. 5000 N

16. The energy was converted

 into heat

Review 4 – waves and index of refraction

 1. 4 m

 2. 0.2 s

 3. 1000 m

 4. 5 Hz

 5. 3 m

 6. b, c – lower a – higher d - same

 7. A

 8. 2.31

 9. 3.3 X 109 Hz

10. 222 nm

11. (a) 19.5o (b) 49o

12. alcohol – lower *n* means higher speed

13. plastic – must go from higher *n* to lower *n*

14. 51o

15. 1.4

16. refraction

17. medium P – larger angle with normal is higher speed material

18. medium Q – higher *n* where speed is lower

19. 1.92

20. 2 X 108 m/s

Review 5 – electricity

 1. positive 16. 72 ohms

 2. 0.64 C 17. 4.5 W

 3. attract 18. 810 J

 4. 7.2 N 19. parallel - NONE

 5. B 20. series – source & A and C & D

 6. left 21. 65 ohms

 7. 500 N/C 22. 1 A for each

 8. 400 volts 23. (a) 1 A (b) 50 volts

 9. 80 J (c) 0.5 A (d) 37.5 volts

10. 80 J

11. 20 m/s

12. 18,700 N/C

13. away from Q

14. A

15. B