

1. 7670 m/s
2. 0.024 m/s²
3. 5.2×10^{26} kg
4. 4.2×10^7 m
5. 223 m/s
6. 4.92×10^5 s
7. 6.5×10^7 m
8. a) T has no m dependence, v as no m dependence v
b) $T' = 5.196T$, $V' = 0.5774 V$
c) $T' = 0.3536T$, $V' = 1.4142 V$
9. 9.81×10^9 J
10. a) -1.9×10^9 J b) 9.5×10^9 J c) -9.5×10^9 J
11. -4.4×10^{10} J
12. a) 1.3×10^{10} J b) 2.1×10^{11} J c) 1.12×10^4 m/s
13. $\frac{1}{2} E_p$
14. a) 4×10^3 m b) 860 m/s
15. 7.74×10^{10} J
16. a) 1.8×10^{11} m from the center of planets X align the line joining planets x and y
b) -4400J