1. $v = \sqrt{2gh}$

2. $t = \sqrt{\frac{2h}{g}}$

---

3. A

---

4. Car B is moving faster than Car A.

5. The acceleration of car B is constant, but not zero.

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6. $\sqrt{5}$

7. 0

8. $\sqrt{5}$

---

9. $v_y = 0$

---

10. $v = \sqrt{2gb}$

11. $F_N = mg\cos\theta$

---

12. down

13. 1600 N

14. 4 m/s

---

15. Directed towards the Earth

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16. $z = -\frac{1}{2}\frac{v_0^2}{a}$

---

17. 1 kg m s^{-2}

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18. $v_0\cos\theta$

19. $\frac{v_0^2\sin^2\theta}{2g}$

---

20. The force of the orange pulling up on the earth.

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21. A

---

22. F_{pull}

23. $m_B < \frac{F_{\text{pull}}}{\mu_s g}$

24. 5 m/s^2

---

25. 20

26. 175

27. $50\sqrt{3}$

28. It would take longer than 5 seconds to hit the ground.

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29. $+v_0$

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30. $T = 2\pi\sqrt{\frac{r}{\mu_s g}}$
