

IB Physics
FA 2.4 – Free Fall Kinematics

Name _____

Round to the correct significant figures, circle your answers, and label them with units. Ignore air friction and use the convention that down is negative. $g = 9.81 \text{ m/s}^2$.

When you have finished this, go to the website and check your answers. If you got a problem wrong, cross it off on the front, and do it correctly on the back.

1-3: An air rocket is launched vertically upward at a velocity of 28.0 m/s .

1. What time will it take to reach the top? What is the greatest height it reaches? What total time will it be in the air?

2. What will be its position and velocity 4.20 s after it is launched?

3. What time will elapse before it is at an elevation of 27.0 m on the way up? on the way down?

4-5: A baseball is popped up to a height of 24.1 m above the bat.

4. What velocity did it leave the bat going upwards? What time will it spend in the air before it reaches the level of the bat again?

5. What two velocities does it have at an elevation of 18.0 m above the bat?