1. What is the rate of change of the volume of a cube with respect to its side lengths s when $s = 5$?

(A) 5

(B) 25

(C) 75

(D) None of the above

2. A rectangular bathtub has a base of 18 ft^2. At what rate is water pouring into the tub if the water level rises at a rate of 0.5 ft/min?

(A) 0.5 ft^3/min

(B) 9 ft^3/min

(C) 18 ft^3/min

(D) None of the above

3. A man of height 1.8 m walks away from a 5.4 m lamppost at a speed of 1.2 m/s. At what rate is the length of his shadow changing?

(A) 0.2 m/s

(B) 0.5 m/s

(C) 0.6 m/s

(D) None of the above

4. A hot air balloon rising vertically is tracked by an observer located 4 km from the liftoff point. At a certain moment, the angle between the observer's line of sight and the horizontal is $\pi/4$, and it is changing at a rate of 0.2 rad/min. How fast is the balloon rising at this moment?

(A) 100 m/min

(B) 400 m/min

(C) 1600 m/min

(D) None of the above

5. At a given moment, a plane passes directly above a radar station at an altitude of 6 km, going at a speed of 15 km/min. How fast is the distance between the plane and the station changing at the instant when the plane passes directly above the radar station?

(A) 0.1 km/min

(B) 0.3 km/min

(C) 0.9 km/min

(D) None of the above

6. A jogger jogs around a circular track of radius 50 m. In a coordinate system with its origin at the center of the track, her x-coordinate is changing at a rate of $-5/4$ m/s when her coordinates are $(40, 30)$. At what rate is her y-coordinate changing?

(A) $5/3$ m/s

(B) $1/24$ m/s

(C) $3/5$ m/s

(D) None of the above