

More 4.1(PVAJ)

A ball is thrown up from a height of 5 ft with an initial velocity of 12 ft/sec. Find the position function given that $p(0)=5$ $v(0)=12$ acceleration due to gravity is $a(t) = -32 \text{ ft/sec}^2$

$$v(t) = \int -32 dt$$

$$v(t) = -32t + C$$

$$12 = 0 + C$$

$$12 = C$$

$$v(t) = -32t + 12$$

$$p(t) = \int (-32t + 12) dt \rightarrow \begin{matrix} P \\ V \\ A \\ J \end{matrix}$$

$$p(t) = -16t^2 + 12t + C$$

$$5 = 0 + 0 + C$$

$$5 = C$$

$$p(t) = -16t^2 + 12t + 5$$

Given $v(t) = 3/t^2$ and $p(1) = 5$, find the position of the particle at $t = 4$.

$$p(t) = \int 3t^{-2} dt$$

$$p(t) = -\frac{3}{t} + C$$

$$p(4) = -\frac{3}{4} + 8$$

$$5 = -3 + C$$

$$8 = C$$

$$= \frac{29}{4}$$

$$p(t) = -\frac{3}{t} + 8$$

How high will the ball go?

$$p(t) = \text{_____}$$

$$V(t) = 0$$

$$t = 2$$

