Station #1

① D

② $a=-1, b=1$

③ $\frac{1}{4}$

④ 0

Station #2

① 5

② 2

③ 0

④ 6

⑤ -1

Station #3

① $y-\frac{1}{5}=\frac{-25}{4}x$

② $x=0, \pm\sqrt{3}$

③ $y-1=\frac{3}{2}(x-\frac{2}{3})$

④ $-\frac{1}{2}$

Station #4

① $y'=2t\sin(t^2)+2t^3\cos(t^2)$

② $-12\csc^3(1-x)\cot(1-x)$

③ $y'=\frac{-6x}{(x^2-12)^2}$ $y''=\frac{18x^2+72}{(x^2-12)^3}$

④ $\frac{-2(3x-1)(3x^2-2x-9)}{(x^2+3)^3}$

⑤ $\frac{(t^4+4t)}{2(t^3+1)^{3/2}}$

Station #5

① Since $f(x)$ is continuous and $f(0)=-1, f(1)=2$, the Intermediate Value Theorem guarantees that there is a zero between $f(0)$ & $f(1)$!

② slowing down because $v(\frac{5\pi}{6})>0$ and $a(\frac{5\pi}{6})<0$

③ a) 3 b) 0

④ $\frac{1}{\sqrt{2x}}$

Station #6

1. C
2. E
3. D
4. A
5. D