STATION ONE

1. $-5/14$

2. A) $\frac{dy}{dx} = \frac{3y-2x}{8y-3x}$

B) $y=2$

$3^2+4(2)^2 = 7+3(3)(2)$

$9+16 = 7+18$

$25=25$ ✓ PROVES $(2,3)$ IS ON CURVE

3. $\frac{dy}{dx} = (2x-1)(x+y)-1$

or

$\frac{dy}{dx} = 2x^2+2xy-x-y-1$

STATION TWO

1. $-2/x^3$

2. $R'(x) = \frac{2^x \ln 2 - (2^x-1)(\ln 5)}{5^x}$

3. OMIT

4. $y = e(x-1)$

STATION THREE

1. $f'(x) = \dfrac{6x}{(3x^2-4)(\ln 2)}$

2. $\dfrac{dy}{dx} = \left[\dfrac{2\sin x}{x} + 2\ln(3x)\cdot\cos x\right]\left[(3x)^{2\sin x}\right]$

3. $\dfrac{2}{e^2}$

4. $\dfrac{dy}{dx} = \dfrac{1}{x} + \dfrac{x}{x^2+1}$

STATION FOUR

1. $\dfrac{d}{dx} = \dfrac{-9x}{\sqrt{1-9x^2}}$

2. $\dfrac{d}{dx} = \dfrac{-2x^2}{1+(4-x^2)^2} + \tan^{-1}(4-x^2)$

3. 3

4. $-1/8$

STATION FIVE

1. $t = 8$

2. $t = 9$ b/c $a(9) = 3$ $a(6) = -3/2$ $a(2) = 0$

3. THE PARTICLE IS MOVING TO LEFT $(4, 10)$ b/c $V < 0$.

4. $(0, 2) \cup (8, 11)$ b/c $a > 0$

5. THE SPEED IS INCREASING ON THE INTERVALS
   $(0, 2)$ b/c $V > 0$ & $a > 0$ AND
   $(4, 8)$ b/c $V < 0$ & $a < 0$ AND
   $(10, 11)$ b/c $V > 0$ & $a > 0$.

6. ACCELERATION UNDEFINED @ $t = 4$ & $t = 8$.