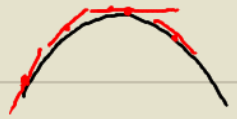
15. $y = 2x^3 - 21x^2$



FINDING HORIZ. TANGENT LINE

① FIND DERIVATIVE

$y' = 2 \cdot 3x^2 - 21 \cdot 2x^1$

$= 6x^2 - 42x$

② SET DERIV. EQUAL TO ZERO AND SOLVE

$6x^2 - 42x = 0$

$6x(x-7) = 0$

$6x = 0 \quad x - 7 = 0$

$\frac{6x}{6} = \frac{0}{6}$

$x = 0 \quad x = 7$

③ PLUG IN EACH x VALUE INTO ORIG FUNCTION TO FIND y-VALUES

$x = 0$

$y = 2x^3 - 21x^2$

$y = 2(0)^3 - 21(0)^2$

$= 0$

(0,0)

$x = 7$

$y = 2x^3 - 21x^2$

$= 2(7)^3 - 21(7)^2$

$= 2(343) - 21(49)$

$= 686 - 1029$

$= -343$

(7, -343)

$49 \overline{)343}$

7

$49 \overline{)1029}$

21

49

980

49

-686

343