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1) Given Informations

$f(n) = 2n(n-1)$

$g(n) = n^2$

Prove: $f(n) = \Theta(g(n))$

$f(n) = 2n^2 - n$

n^2 in $f(n)$ and n^2 in $g(n)$ because $2n^2$ & n^2 in in $f(n)$ & $g(n)$ have the highest complexity Here we need to find out the upper and lower bound.

my approach is $f(n) = \Theta(g(n))$

when $c1 \cdot g(n) <= f(n) <= c2 \cdot g(n)$

where $n >= n0$, $c1, c2 > 0$, n.

$n^2 <= 2n^2 - n <= n^2$

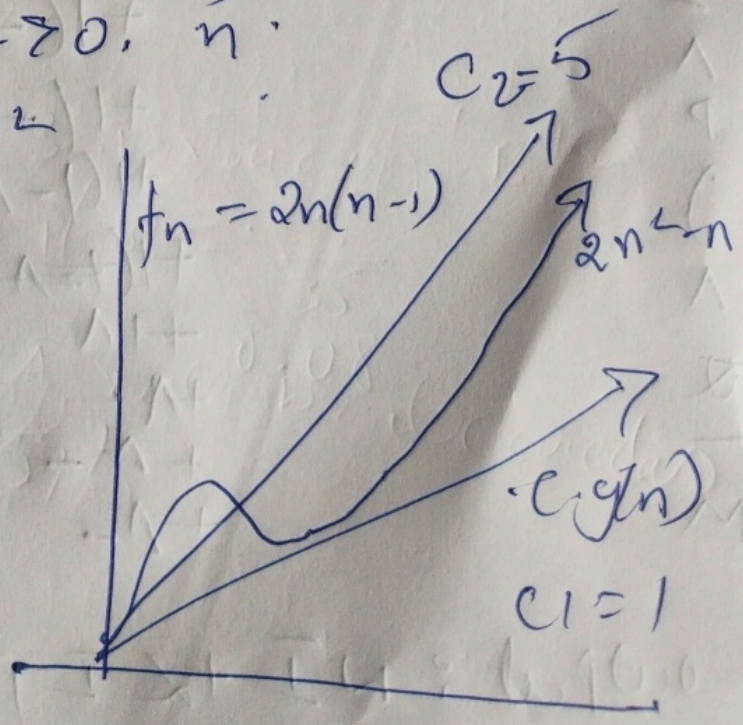
$n = n0 = 1$

$1 <= 2(1) - 1$

$\downarrow$

$n = 1$

$2 <= 1 <= n = 10$



So $g(n) <= \Theta(n)$

2) Convert Infix Expression to Postfix

W + I * (L - I ^ P) ^ Q - M

Precedance

1. + -
2. ^ *
3. / %

Symbol	Stack	Postfix
I	.	I
+	+	
W	+	W
*	+*	
I	+*	WI
/	+/	WI*
(	+/(	
L	+/(	WI*L
-	+/(-	WI*L
I	+/(-	WI*LI
^	+/(-^	WI*LI
P	+/(-^	WI*LIP
)	+/	WI*LIP^-
^	+/^	WI*LIP^-
Q	+/^	WI*LIP^-Q
-	+	WI*LIP^-Q/
M	+	WI*LIP^-Q/M
		WI*LIP^-Q/M+

output : WI*LIP^-Q/M+