	Algorithms lecture - 1
	(m) a la - (m) 1 the Homeworld - (a) 1 1 toth part (a)
	(1010 (m) 010) - (m) 1 (m) 7 mil
01)	Perouse that $J(n+1)^3 = -2(nJn)$. Hard $Jab = JaJb$, for any
	nonnegative real numbers a and b.
Au	According to formal definition of big-omega, JIn+13 = ~ (nJh) if
	and only if there exists positive constants c and no buch
	that pana Junis = c. nJn for all n = no
	Do, con Ja+p3 ≥ con Ja do man both down
	$((n+1)^3)^{1/2} = n(n)^{1/2}$
	A han a uldellaco
	$\frac{(n+1)^{3 2}}{(n(1+1)^{3 2})^{3 2}} \ge \frac{n^{3 2}}{n^{3 2}} = \frac{n^{3 2}}{(1+1)^{3 2}} \ge \frac{n^{3 2}}{n^{3 2}} = \frac{1}{(1+1)^{3 2}} \ge \frac{1}{(1+1)^{3 2$
	$(m/1+1)^{3/2} > m^{3/2}$
	$m^{3/2} (1+1)^{3/2} > m^{3/2} \rightarrow (1+1)^{3/2} > 1$
	B- (m) of m)
	If n increases, n3/2 (1+1,3/2 automatically increases. If we choose C=1)
	March
	Therefore, there exist $c=1$, and Auch that $n \ge n_0$, such that
	Therefore there exist C=1 more Auch that n=n such that
f n	my Janus 2 c. n. Jn Jon alle n 2 no of and
	The will along
	Thursdown, $J(n+1)^3 = -2(nJn) + J(n+1)^3 = (n+1)^{3/2} > J(nJn)$
	2017 - Charles 3
	(100) x (100) 0 - (100) 1 (100) 1
	(m) form = 0(g,(m) g_2(m))
	prevard incoll
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(12) Prove that y fi(n) = O(g,(n)) and fo(n) = O(go(n)) then fi(m) fo(n) = O(q,(n) g_(n)). By formal definition of Big-oh, fi(n) = O(g,(n)), there exist positive constants C, and n, such that n > n, - () (1(n) < C, (g, (n)) erone sing > c. win for all man folm) = O(go(m)), there excist positive constants Co and no, such that n 2 ma - 2 (2 (92(m)). multiply and 6, 1,(n) b(n) & C(g,(n) C2(g2(n)) let CxC2=C; then sign = sign; 41(m) fo(n) < C(g1(n) g2(n)) - 3 Eq. 3 becomes formal definition of Big Oh, (of f(n) = f(n) f2(n), gn = g(n) xg2(n). There exist positive constants C and no for max (m and no) such that m > no. 1, (m) fe(m) L C (g, (m) ge(m)). f.(n) f2(n) = O(g,(n) g2(n)) Honce bround

93)	Prove that if f(m) = O(g(m)) and g(m) = O(n(m), thin
	f(m) = O(h(m)).
A3)	By formal definition of Big-On, f(n) =0(g(n), those exainst positive constant q and n, such that for n = n,
	Dimilarly, g(n) = C2(n(n))(2)
	Frama and ay
	f(n) & C, (g(n))
	g(n) < G(h(n)). Aubstitute (g(n)) into f(n), it secomes
	1(n) 4(c, G).h(n) let C=C,G,
	1(n) 4 c (h(n))
	By definition of Big-Oh,
	f(n) = O(h(n))
	There exist constant c and no = max(n, n2), such that
	the same of the sa