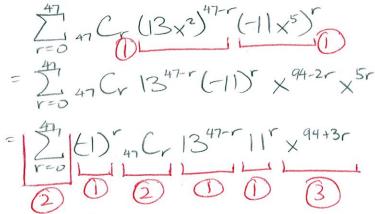
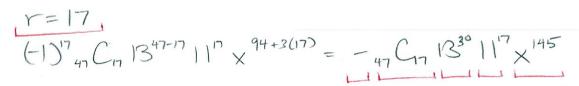
[a]

Write the expansion of the expression using sigma notation. Your answer may use ${}_{n}C_{r}$ notation, \times and positive exponents only. Simplify all exponents.



(2) IF INDEX DOESN'T MATCH INSIDE OF I

Find the 18^{th} term in the expansion. Your answer may use ${}_{n}C_{r}$ notation, +, -, × and positive exponents only.



Find the coefficient of x^{187} in the expansion. Your answer may use ${}_{n}C_{r}$ notation, +, -, × and positive exponents only.

$$94+3r=187.6$$

$$3r=93$$

$$r=31.2$$

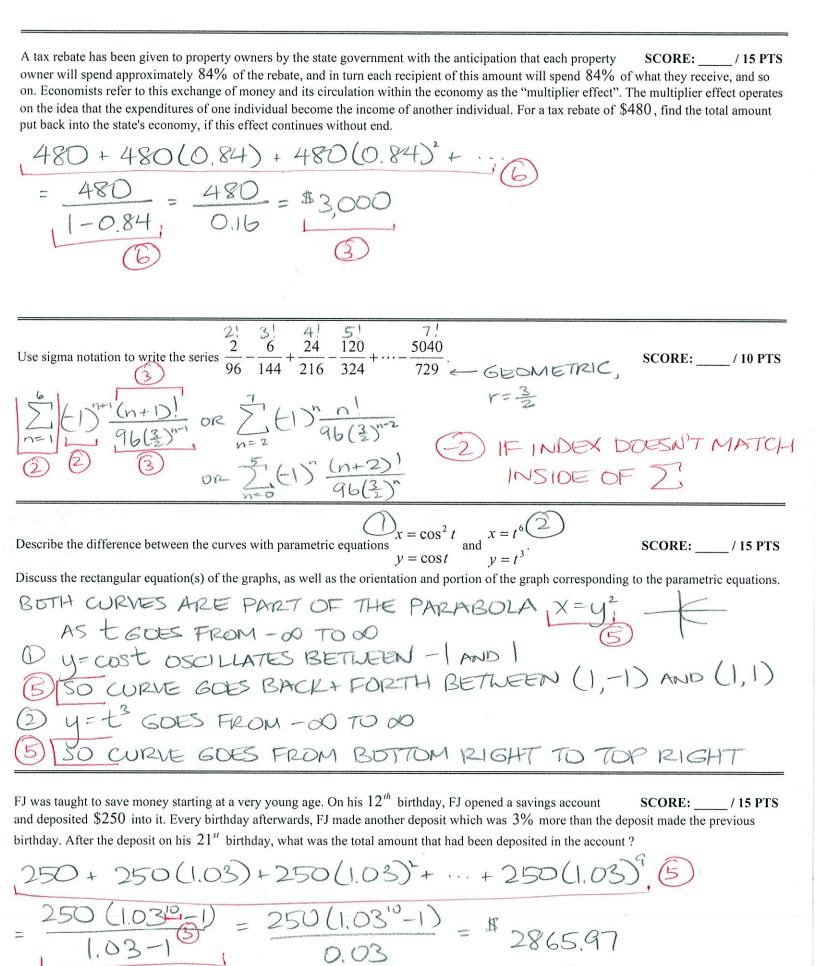
$$(-1)^{3}_{47}C_{31}13^{47-31}11^{31}=-47C_{31}13^{16}11^{31}$$

$$0 0 0 0$$

Find the sum of the series $121 + 115 + 109 + 103 + \cdots - 251$.

-251 = 121 + (-6)(n-1) = 563 = 63 = 63 = (121 + -251) -372 = -6(n-1)

62=n-1 n=63(2)



Using mathematical induction, prove that $\sum_{i=1}^{n} [i(3i+1)] = n(n+1)^2$ for all positive integers n .	SCORE: / 25 PTS
BASIS STEP: \(\(\frac{1}{2}\) (i(3i+1)) = 1(3+1) = 4 = 1(1+1)^2	
Using mathematical induction, prove that $\sum_{i=1}^{n} [i(3i+1)] = n(n+1)^2$ for all positive integers n . BASIS STEP: $\sum_{i=1}^{n} (i(3i+1)) = (3+1) = A = (1+1) ^2$ INDUCTIVE: ASSUME $\sum_{i=1}^{n} (i(3i+1)) = k(k+1) ^2$ FOR SO STEP	ME PARTICULAR BITRARY INTEGER
[(i(3i+1))=] (i(3i+1)) + (k+1)(3(k+	-D+D (3)
$(2) \qquad (2) \qquad (2) + (k+1)(3k+4),$ $= (k+1)(k^2+k+3)(2+4) \qquad A$ $= (k+1)(k^2+4k+4) \qquad A$	2
= (K+1)(K+K+4)	PROOF (5)
$=(k+1)(k+2)^{2}, (2)$	
$= (k+1)((k+1)+1)^{2}$ BY MI, $\sum_{i=1}^{n} (i(3i+1)) = n(n+1)^{2}$ FOR ALL INTEGER	$sn \ge 10$
GJ is trying to qualify for the school team in the shot put event, which involves throwing a heavy metal ball can a shot. In order to qualify, the shot must land on the ground at least 36 feet from where GJ is standing. For G, thrown at an angle of 36.87° with the horizontal, at an initial speed of 30 feet per second, from an initial heavy metal ball can be shown at an angle of 36.87° with the horizontal, at an initial speed of 30 feet per second, from an initial heavy metal ball can be shown at an angle of 36.87° with the horizontal, at an initial speed of 30 feet per second, from an initial heavy metal ball can be shown at an angle of 36.87° with the horizontal, at an initial speed of 30 feet per second, from an initial heavy metal ball can be shown at an angle of 36.87° with the horizontal, at an initial speed of 30 feet per second, from an initial heavy metal ball can be shown at an angle of 36.87° and 36.87° are shown at an angle of 36.87° and 3	J's farthest throw, the shot is
Write parametric equations for the position of the shot. $ \begin{array}{cccccccccccccccccccccccccccccccccc$	2 2 2
Does GJ qualify for the team? $3b = 24t, -3t = \frac{3}{2}, = \frac{3}{2}$ $3y = 6 + 18(\frac{3}{2}) - 16(\frac{3}{2})^{2}, = \frac{3}{2}$ $= 6 + 27 - 36 = \frac{3}{2}$	
2) -3 20 - SHOT HAD ALIZEADY HAT TI	HE GROUND E 36 FT MARK