$3+1+(-4)+(-12)$

$\frac{n(n+1)(2n+1)}{6}$

$\frac{4(4+1)(2(4)+1)}{6}$

$\frac{4(5)(9)}{6}$

Find the sum

A) $\sum_{n=1}^{4} 2+\frac{5}{2}n-\frac{3}{2}n^2 = -12$

$a_1 = 2+\frac{5}{2}(1)-\frac{3}{2}(1)^2$

$\frac{4}{2}+\frac{5}{2}-\frac{3}{2} = \frac{6}{2} = 3$

$a_4 = 2+\frac{5}{2}(4)-\frac{3}{2}(4)^2$

$2+10-24$

$a_2 = 2+\frac{5}{2}(2)-\frac{3}{2}(2)^2$

$2+5-6$

$a_3 = 2+\frac{5}{2}(3)-\frac{3}{2}(3)^2$

$\frac{4}{2}+\frac{15}{2}-\frac{27}{2} = \frac{-8}{2} = -4$

B) $\sum_{n=1}^{5} n^2+5 = 80$

$a_1 = 1^2+5 = 6$

$a_2 = 2^2+5 = 9$

$a_3 = 3^2+5 = 14$

$a_4 = 4^2+5 = 21$

$a_5 = 5^2+5 = 30$

$6+9+14+21+30$

C) $\sum_{n=1}^{6} n^3 =$

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$a_1 = 1$ $a_4 = 64$

$a_2 = 8$ $a_5 = 125$

$a_3 = 27$ $a_6 = 216$

	Find the sum A) $\sum_{n=1}^{15} 2+\frac{5}{2}n-\frac{3}{2}n^2 =$ B) $\sum_{n=1}^{20} n^2+5 =$ C) $\sum_{n=1}^{20} n^3 =$

List the formulas for the following sums of powers of integers.

1. $1+2+3+4+\cdots+n=$ $n(n+1)/2$

2. $1^2+2^2+3^2+4^2+\cdots+n^2=$ $n(n+1)(2n+1)/6$

3. $1^3+2^3+3^3+4^3+\cdots+n^3=$ $n^2(n+1)^2/4$

4. $1^4+2^4+3^4+4^4+\cdots+n^4=$ $n(n+1)(2n+1)(3n^2+3n-1)/30$

5. $1^5+2^5+3^5+4^5+\cdots+n^5=$ $n^2(n+1)^2(2n^2+2n-1)/12$

Find the limit of the a sequence

A) $a_n = \dfrac{3n+1}{2n}$

$a_1 = 2$ $a_5 = 1.6$ $a_9 = 1.\overline{5}$

$a_2 = 1.75$ $a_6 = 1.58\overline{3}$ $a_{10} = 1.55$

$a_3 = 1.\overline{6}$ $a_7 = 1.5714$

$a_4 = 1.625$ $a_8 = 1.5625$

$\lim_{x \to \infty} = \frac{3}{2}$

B) $a_n = \dfrac{6n^2+2n-3}{3n^2+1}$

limit 2

$a_1 = 1.25$ $a_5 = 2.0657$ $a_9 = 2.053$

$a_2 = 1.9231$ $a_6 = 2.064$ $a_{10} = 2.049$

$a_3 = 2.0357$ $a_7 = 2.060$

$a_4 = 2.0612$ $a_8 = 2.056$

2.5

C) $a_n = \dfrac{5n^3+2n-3}{2n^3+1}$

D) $a_n = \dfrac{8n^4+2n-3}{15n^4+1}$

$a_1 = 1.\overline{3}$ $a_5 = 2.517$ $a_9 = 2.508$

$a_2 = 2.41$ $a_6 = 2.515$ $a_{10} = 2.507$

$a_3 = 2.509$ $a_7 = 2.512$

$a_4 = 2.519$ $a_8 = 2.510$

Find the limit of the a sequence

A) $a_n = \dfrac{3n+1}{2n^2}$

$a_1 = 2$

$a_2 = .875$

$a_3 = .\overline{5}$

$a_4 = .406$

$a_5 = .32$

$a_6 = .263\overline{8}$

$a_7 = .2244$

$a_8 = .195$

$a_9 = .172$

$a_{10} = .155$

B) $a_n = \dfrac{6n^2+2n-3}{3n^5+1}$

C) $a_n = \dfrac{10n+2n-3}{3n^3+1}$

D) $a_n = \dfrac{5n^2+2n-3}{10n^4+1}$

Find the limit of the a sequence

A) $a_n = \dfrac{3n^3+1}{2n^2}$ DNE

$a_1 = 2$ $a_5 = 7.52$ $a_9 = 13.504$

$a_2 = 3.125$ $a_6 = 9.013$ $a_{10} = 15.005$

$a_3 = 4.\overline{5}$ $a_7 = 10.51$

$a_4 = 6.03$ $a_8 = 12.008$

B) $a_n = \dfrac{6n^4+2n-3}{3n^2+1}$

C) $a_n = \dfrac{6n^5+1}{3n^2}$

D) $a_n = \dfrac{6n^4-5n^3+1}{3n^3+2n+1}$

	Find the limit of the sequence A) $a_n = \left(\frac{1}{n} - 4\right)\left(\frac{3}{n} - 1\right)$ B) $a_n = \left(\frac{3n^3 + 4n + 2}{n^2 + 1}\right)\left(\frac{5n^2 - 32}{2n^4 + 7}\right)$
