

KRÖNECKER DELTA DRILL

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Evaluate the following expressions:

a. $\sum_{n=0}^{\infty} n, 2 = ?$

b. $\sum_{n=0}^{\infty} n^2, 2 = ?$

c. $\sum_{n=-\infty}^{\infty} n^2, 2 = ?$

d. $\sum_{n=4}^{10} n, 2 = ?$

e. $\sum_{n=-\infty}^{\infty} n^2, 2 = ?$

f. $\sum_{n=-\infty}^{\infty} n^2, 2 = ?$

g. $\sum_{n=-\infty}^{\infty} n^2, 4 = ?$

h. $\sum_{n=-\infty}^{\infty} n^2, 4 = ?$

i. $\sum_{n=-\infty}^{\infty} n^2, 4 = ?$

j. $\sum_{n=1}^{\infty} n \sin\left(\frac{n}{2}\right), 1 = ?$

k. $\sum_{n=1}^{\infty} n \sin\left(\frac{n}{2}\right), 2 = ?$

l. $\sum_{n=1}^{\infty} n \sin\left(\frac{n}{2}\right), 3 = ?$

Write the following series in the sigma notation. You need not evaluate the sums.

example: $1 + 1/3 + 1/9 + 1/27 + \dots = \sum_{n=0}^{\infty} \frac{1}{3^n}$

m. $1 - 1/3 + 1/9 - 1/27 + \dots = ?$

n. $1 - 1/k + 1/k^2 - 1/k^3 + \dots = ?$

o. $1/k - 1/k^2 + 1/k^3 - 1/k^4 + \dots = ?$

p. $1 - \frac{1}{2} \cos 2 + \frac{1}{4} \cos 4 - \frac{1}{6} \cos 6 + \dots = ?$

q. $\sin 1 - \frac{1}{3} \sin 3 + \frac{1}{5} \sin 5 - \frac{1}{7} \sin 7 + \dots = ?$

r. $1 - \frac{1}{2} \cos 1 + \frac{1}{4} \cos 2 - \frac{1}{8} \cos 3 + \dots = ?$

Can you write **p** and **q** without using the notation "even" and "odd"?