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Exercise Set 5.1 - 21, 60

I don't know how to type sigmas in Microsoft word.

5.1 #21: Sigma $1 / 2^m$, where m =0 and upper limit = 3.

$$\sum_{m=0}^{3} 1/\ 2^m$$

(1 / 2^0) + (1 / 2^1) + (1 / 2^2) + (1 / 2^3) = 1 + ½ + ¼ + 1/8 = 1 7/8 or 15/8 or 1.875.

#60: Sigma $(3k^2 + 4) + 5$ * sigma $(2k^2 -1)$, where k = 1 and upper limit = n.

To rewrite this as a single sum, I can algebraically evaluate the two expressions separately, and then put them under their common sigmas.

$(3k^2 + 4) + 5 (2k^2 – 1) = (3k^2 +4) + (10k^2 – 5) = 13k^2 -1$

Answer:

$$\sum_{k=1}^{n} (13k^2 - 1)$$