

Extra Practice: Series and Summation Notation

Date _____ Block _____

Rewrite each series as a sum.

1) $\sum_{k=4}^8 \frac{k}{k+1}$ $\frac{4}{5} + \frac{5}{6} + \frac{6}{7} + \frac{7}{8} + \frac{8}{9}$

2) $\sum_{a=2}^7 \frac{210}{a}$ $105 + 70 + \frac{105}{2} + 42 + 35 + 30$

3) $\sum_{k=2}^5 \frac{k^2+1}{k}$ $\frac{5}{2} + \frac{10}{3} + \frac{17}{4} + \frac{26}{5}$

4) $\sum_{n=2}^7 (400 - n^2)$ $396 + 391 + 384 + 375 + 364 + 351$

5) $\sum_{m=1}^6 \frac{1}{5^m}$ $\frac{1}{5} + \frac{1}{25} + \frac{1}{125} + \frac{1}{625} + \frac{1}{3125} + \frac{1}{15625}$

6) $\sum_{n=0}^3 n(n+1)$ $0 + 2 + 6 + 12$

7) $\sum_{k=1}^4 \frac{270}{k}$ $270 + 135 + 90 + \frac{135}{2}$

8) $\sum_{k=2}^7 k^2$ $4 + 9 + 16 + 25 + 36 + 49$

9) $\sum_{k=3}^8 (100 - k)$ $97 + 96 + 95 + 94 + 93 + 92$

10) $\sum_{k=5}^9 \frac{k^2+1}{k}$ $\frac{26}{5} + \frac{37}{6} + \frac{50}{7} + \frac{65}{8} + \frac{82}{9}$

Evaluate each series.

11) $\sum_{a=5}^{11} a^2$ 476

12) $\sum_{m=1}^5 \frac{7}{m}$ $\frac{959}{60}$

13) $\sum_{m=1}^6 m(m-2)$ 49

14) $\sum_{n=0}^5 n(n-2)$ 25

15) $\sum_{k=0}^4 (40 - k^2)$ 170

16) $\sum_{m=5}^{11} (2m^2 - 2)$ 938

17) $\sum_{k=0}^6 (100 - k^2)$ 609

18) $\sum_{k=0}^5 2k$ 30

19) $\sum_{a=4}^{10} (4a^2 - 4)$ 1456

20) $\sum_{m=4}^{10} \frac{180}{m}$ $\frac{2761}{14}$

Rewrite each series using sigma notation.

21) $0 + 3 + 6 + 9 + \dots$ $\sum_{n=0}^3 3n$

22) $6 + 3 + 2 + \dots$ $\frac{3}{2} \sum_{m=1}^4 \frac{6}{m}$

23) $1 + 2 + 3 + 4 + 5 + 6 + \dots$ $\sum_{a=1}^6 a$

24) $0 + 5 + 10 + 15 + \dots$ $\sum_{a=0}^3 5a$

25) $\frac{1}{125} + \frac{1}{625} + \frac{1}{3125} + \frac{1}{15625} + \dots$ $\sum_{n=3}^6 \frac{1}{5^n}$

26) $4 + \frac{8}{3} + 2 + \frac{8}{5} + \dots$ $\sum_{m=2}^5 \frac{8}{m}$

27) $8 + 4 + \frac{8}{3} + 2 + \dots$ $\sum_{k=1}^4 \frac{8}{k}$

28) $\frac{3}{4} + \frac{4}{5} + \frac{5}{6} + \frac{6}{7} + \dots$ $\sum_{a=3}^6 \frac{a}{a+1}$

29) $\frac{1}{2} + \frac{2}{3} + \frac{3}{4} + \frac{4}{5} + \frac{5}{6} + \dots$ $\sum_{m=1}^5 \frac{m}{m+1}$

30) $0 + 2 + 4 + 6 + \dots$ $\sum_{k=0}^3 2k$