Woopsy!

14.1 Corrective Assignment

Find the next three terms in each sequence. Then, tell if the sequence converges or diverges.

1) 2, 4, 12, 48, 240, ...

2) $\frac{3}{2}, \frac{3}{4}, \frac{3}{8}, \frac{3}{16}, \frac{3}{32}, ...$

3) −30, −26, −22, −18, −14, ...

4) $\frac{3}{2}, \frac{5}{4}, \frac{7}{6}, \frac{9}{8}, \frac{11}{10}, ...$

Find the first four terms in each sequence, given the explicit formula.

5) $a_n = -3 \cdot 6^{n-1}$

6) $a_n = (2n)^2$

7) $a_n = 0.6 + 2.5n$

8) $a_n = -223 + 200n$

Find the first four terms in each sequence, given the recursive formula.

9) $a_n = a_{n-1} \cdot -2$
   $a_1 = 0.5$

10) $a_n = a_{n-1} + 100$
    $a_1 = 25$

11) $a_n = a_{n-1} - 6$
    $a_1 = -14$

12) $a_n = na_{n-1}$
    $a_1 = -2$

Write the explicit formula for each sequence.

13) 20, 25, 30, 35, 40, ...

14) 12, 15, 18, 21, 24, ...

15) 2, 22, 122, 622, 3122, ...

16) 0, 3, 8, 15, 24, ...

Write the recursive formula for each sequence.

17) −1, −2, −6, −24, −120, ...

18) 25, 10, 4, $\frac{8}{5}$, $\frac{16}{25}$, ...

19) −1, 199, 399, 599, 799, ...

20) 25, 27, 29, 31, 33, ...

Evaluate each series.

21) $\sum\limits_{n=3}^{9} \left(100 - n^2\right)$

22) $\sum\limits_{k=0}^{6} \left(2k^2 - 1\right)$

23) $\sum\limits_{m=1}^{18} m$

24) $\sum\limits_{m=1}^{5} 5m$

25) $\sum\limits_{k=4}^{8} k^2$

26) $\sum\limits_{k=1}^{7} \left(10 - k^2\right)$

Rewrite each series using sigma notation.

27) 5 + 25 + 125 + 625 + 3125 + 15625

28) 5 + 10 + 15 + 20

29) 601 + 602 + 603 + 604

30) 2 + 4 + 8 + 16 + 32 + 64

Answers to 14.1 Corrective Assignment

1) 1440, 10080, 80640

2) $\dfrac{3}{64}, \dfrac{3}{128}, \dfrac{3}{256}$

3) −10, −6, −2

4) $\dfrac{13}{12}, \dfrac{15}{14}, \dfrac{17}{16}$

5) −3, −18, −108, −648

6) 4, 16, 36, 64

7) 3.1, 5.6, 8.1, 10.6

8) −23, 177, 377, 577

9) 0.5, −1, 2, −4

10) 25, 125, 225, 325

11) −14, −20, −26, −32

12) −2, −4, −12, −48

13) $a_n = 15 + 5n$

14) $a_n = 9 + 3n$

15) $a_n = 5^n - 3$

16) $a_n = n^2 - 1$

17) $a_n = n a_{n-1}$
$a_1 = -1$

18) $a_n = a_{n-1} \cdot \dfrac{2}{5}$
$a_1 = 25$

19) $a_n = a_{n-1} + 200$
$a_1 = -1$

20) $a_n = a_{n-1} + 2$
$a_1 = 25$

21) 420

22) 175

23) 171

24) 75

25) 190

26) (-70)

27) $\displaystyle\sum_{k=1}^{6} 5^k$

28) $\displaystyle\sum_{k=1}^{4} 5k$

29) $\displaystyle\sum_{n=1}^{4} (n + 600)$

30) $\displaystyle\sum_{a=1}^{6} 2^a$