CHAPTER 12-4

SUMMATIONS

1. 060326b, P.I. A2.N.10

Evaluate: $2\sum_{n=1}^{5}(2n-1)$

[1] _____

2. 010601b, P.I. A2.N.10

What is the value of $\sum_{n=1}^{5}(-2n+100)$?

[A] 470 [B] 70 [C] 530 [D] 130

[2] _____

3. 060201b, P.I. A2.N.10

What is the value of $\sum_{m=2}^{5}(m^2-1)$?

[A] 53 [B] 50 [C] 54 [D] 58

[3] _____

4. 080521b, P.I. A2.N.10

Evaluate: $\sum_{n=1}^{5}(n^2+n)$

[4] _____

5. 060117b, P.I. A2.N.10

What is the value of $\sum_{m=1}^{3}(2m+1)^{m-1}$?

[A] 55 [B] 245 [C] 15 [D] 57

[5] _____

6. 060421b, P.I. A2.N.10

The projected total annual profits, in dollars, for the Nutyme Clothing Company from 2002 to 2004 can be approximated by the model $\sum_{n=0}^{2}(13{,}567n+294)$, where n is the year and $n=0$ represents 2002. Use this model to find the company's projected total annual profits, in dollars, for the period 2002 to 2004.

[6] _____

7. 080418b, P.I. A2.N.10

A ball is dropped from a height of 8 feet and allowed to bounce. Each time the ball bounces, it bounces back to half its previous height. The vertical distance the ball travels, d, is given by the formula $d=8+16\sum_{k=1}^{n}(\frac{1}{2})^{k}$, where n is the number of bounces. Based on this formula, what is the total vertical distance that the ball has traveled after four bounces?

[A] 22.0 ft [B] 8.9 ft

[C] 23.0 ft [D] 15.0 ft

[7] _____

8. 060624b, P.I. A2.N.10

Evaluate: $\sum_{k=1}^{2}\frac{(-1)^{k-1}}{(2k-1)!}$

[8] _____

9. 080213b, P.I. A2.N.10

If ${}_nC_r$ represents the number of combinations of n items taken r at a time, what is the value of $\sum_{r=1}^{3}{}_4C_r$?

[A] 6 [B] 4 [C] 24 [D] 14

[9] _____

10. 010505b, P.I. A2.N.10

The value of $\sum_{r=2}^{4} {}_5C_r$ is

[A] 5 [B] 25 [C] 45 [D] 10

[10] _____

11. 060523b, P.I. A2.N.10

Evaluate: $\sum_{k=0}^{3}(3\cos k\pi + 1)$

[11] _____

12. 010304b, P.I. A2.N.10

What is the value of $\sum_{b=0}^{3}(2-(b)i)$?

[A] 2-6*i* [B] 8-6*i* [C] 8-5*i* [D] 2-5*i*

[12] _____

13. 010825b, P.I. A2.N.10

If $i = \sqrt{-1}$, what is the value of the expression $\sum_{n=1}^{20} i^{4n}$?

[13] _____

14. 080614b, P.I. A2.N.10

Jonathan's teacher required him to express the sum $\frac{2}{3}+\frac{3}{4}+\frac{4}{5}+\frac{5}{6}+\frac{6}{7}$ using sigma notation. Jonathan proposed four possible answers. Which of these four answers is *not* correct?

[A] $\sum_{k=1}^{5}\frac{k}{k+1}$ [B] $\sum_{k=1}^{5}\frac{k+1}{k+2}$

[C] $\sum_{k=3}^{7}\frac{k-1}{k}$ [D] $\sum_{k=2}^{6}\frac{k}{k+1}$

[14] _____

15. 060714b, P.I. A2.N.10

The expression $1+\sqrt{2}+\sqrt[3]{3}$ is equivalent to

[A] $\sum_{n=1}^{3} n^{\frac{1}{n}}$ [B] $\sum_{n=1}^{3}\sqrt{n}$

[C] $\sum_{n=1}^{3} n^{-n}$ [D] $\sum_{n=0}^{3} n^{n}$

[15] _____

[2] 50, and appropriate work is shown, such as $2(1 + 3 + 5 + 7 + 9)$.
[1] Appropriate work is shown, but one computational error is made.
or [1] Appropriate work is shown, but $(1 + 3 + 5 + 7 + 9)$ is not multiplied by 2, resulting in an answer of 25.
or [1] 50, but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously
[1] incorrect procedure.

[2] A

[3] B

[2] 70, and appropriate work is shown.
[1] Appropriate work is shown, but one computational error is made.
or [1] Appropriate work is shown, but one conceptual error is made.
or [1] The values for $n = 1$ through $n = 5$ are computed correctly, but they are not added.
or [1] 70, but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously
[4] incorrect procedure.

[5] A

[2] 41,583, and appropriate work is shown.
[1] Appropriate work is shown, but one conceptual error or one computational error is made.
or [1] 41,583, but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously
[6] incorrect procedure.

[7] C

[2] $\frac{5}{6}$ or $0.8\overline{3}$, and appropriate work is shown.
[1] Appropriate work is shown, but one computational or rounding error is made, such as representing $\frac{5}{6}$ as a terminating decimal.
or [1] Appropriate work is shown, but one conceptual error is made.
or [1] $\frac{5}{6}$ or $0.8\overline{3}$, but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously
[8] incorrect procedure.

[9] D

[10] B

[2] 4, and appropriate work is shown.
[1] Appropriate work is shown, but one computational error is made.
or [1] Appropriate work is shown, but one conceptual error is made.
or [1] 4, but no work is shown.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously
[11] incorrect procedure.

[12] B

[2] 20, and appropriate work is shown or an appropriate explanation is written.
[l] Appropriate work is shown, but one computational error is made.
or [1] Appropriate work is shown, but one conceptual error is made.
or [1] 20, but no work is shown or no explanation is written.
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously
[13] incorrect procedure.

[14] A

[15] A