Chapter 10 Test

Evaluate each arithmetic series described. (No calculators)

1) \[ \sum_{k=1}^{45} (9k - 6) \]
A) 9045  B) 18082  C) 36150  D) 18090
2) \[ a_1 = -2, \ d = -4, \ n = 20 \]
A) -1600  B) -800  C) -1602  D) -1611

Evaluate each geometric series described.

3) \[ \sum_{k=1}^{7} 4^{k-1} \]
A) 5461  B) \(-\frac{1}{3}\)  C) 5701  D) 6118

Evaluate each infinite geometric series described.

4) \[ \sum_{n=1}^{\infty} 6 \cdot 0.7^{n-1} \]
A) 20  B) No sum  C) 21  D) 3.3333333333

Find the explicit formula.

5) 19, 39, 59, 79, ...
A) \( a_n = 40 - 21n \)
B) \( a_n = -1 + 20n \)
C) \( a_n = -2 + 21n \)
D) \( a_n = 41 - 22n \)

6) 4, -8, 16, -32, ...
A) \( a_n = 4 \cdot (-2)^{n-1} \)
B) \( a_n = -8 \cdot (-2)^{n-1} \)
C) \( a_n = 2 \cdot (-4)^{n-1} \)
D) \( a_n = -8 \cdot (-4)^{n-1} \)
Find the term named in the problem. (Calculators Allowed)

7) 16, 6, −4, −14, ...
   Find \( a_{37} \)

8) −29, −22, −15, −8, ...
   Find \( a_{26} \)

9) −3, 6, −12, 24, ...
   Find \( a_{11} \)

10) −4, −12, −36, −108, ...
    Find \( a_{11} \)

Find the missing term or terms in each arithmetic sequence.

11) ..., −31, __, __, −49, ...

12) ..., 22, __, __, __, 34, ...

Find the missing term or terms in each geometric sequence.

13) ..., 4, __, __, 32, ...

14) ..., 1, __, __, __, 256, ...

Find each coefficient described.

15) Coefficient of \( y^3x^3 \) in expansion of \( (y + 2x)^6 \)

Find each term described.

16) 4th term in expansion of \( (x + 2y)^5 \)
### Answers to Chapter 10 Test (ID: 9)

1. A  
2. B  
3. A  
4. A  

5. B  
6. A  
7. $a_{37} = -344$  
8. $a_{26} = 146$  

9. $a_{11} = -3072$  
10. $a_{11} = -236196$  
11. $-37, -43$  
12. 25, 28, 31  

13. 8, 16  
14. 4, 16, 64  
15. 160  
16. $80x^2y^3$  

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Evaluate each arithmetic series described. (No calculators)

1) \( \sum_{m=1}^{35} (10m - 13) \)
   A) 2917   B) 2925
   C) 5855   D) 5856

Evaluate each geometric series described.

3) \( \sum_{m=1}^{10} (-4)^{m-1} \)
   A) -245270   B) \( \frac{1}{5} \)
   C) -277801   D) -209715

Evaluate each infinite geometric series described.

4) \( \sum_{i=1}^{\infty} 96 \cdot \left( \frac{1}{2} \right)^{i-1} \)
   A) No sum   B) 2
   C) 158   D) 192

Find the explicit formula.

5) -36, -41, -46, -51, ...
   A) \( a_n = -29 - 5n \)
   B) \( a_n = -34 - 5n \)
   C) \( a_n = -35 - 4n \)
   D) \( a_n = -31 - 5n \)

6) 3, -9, 27, -81, ...
   A) \( a_n = -4 \cdot 3^{n-1} \)
   B) \( a_n = 3 \cdot (-3)^{n-1} \)
   C) \( a_n = 4 \cdot (-3)^{n-1} \)
   D) \( a_n = -3 \cdot 3^{n-1} \)
Find the term named in the problem. (Calculators Allowed)

7) 17, 117, 217, 317, ...
   Find $a_{28}$

8) 12, 212, 412, 612, ...
   Find $a_{39}$

9) 3, -12, 48, -192, ...
   Find $a_{9}$

10) -2, -4, -8, -16, ...
    Find $a_{11}$

Find the missing term or terms in each arithmetic sequence.

11) ..., -6, __, __, -33, ...

12) ..., -11, __, __, __, 29, ...

Find the missing term or terms in each geometric sequence.

13) ..., -2, __, __, -432, ...

14) ..., 1, __, __, __, 256, ...

Find each coefficient described.

15) Coefficient of $x^4y$ in expansion of $(x + 2y)^5$

Find each term described.

16) 4th term in expansion of $(n - m)^5$
### Answers to Chapter 10 Test (ID: 10)

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<td>9</td>
<td>$a_9 = 196608$</td>
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<td>$a_{11} = -2048$</td>
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<td>$a_{28} = 2717$</td>
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<td>$-12, -72$</td>
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<td>11</td>
<td>$-15, -24$</td>
<td>12</td>
<td>$-1, 9, 19$</td>
<td>15</td>
<td>10</td>
<td>16</td>
<td>$-10n^2m^3$</td>
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Chapter 10 Test

Evaluate each arithmetic series described. (No calculators)

1) \[\sum_{k=1}^{15} (-4k - 3)\]
   A) -806   B) -403
   C) -405   D) -810

2) \[a_1 = -18, \quad d = -6, \quad n = 25\]
   A) -2245   B) -4487
   C) -4496   D) -2250

Evaluate each geometric series described.

3) \[\sum_{n=1}^{10} 4^{n-1}\]
   A) \(-\frac{1}{3}\)   B) 286605
   C) 244643   D) 349525

Evaluate each infinite geometric series described.

4) \[\sum_{n=1}^{\infty} \frac{3}{2} \cdot \left(-\frac{3}{5}\right)^{n-1}\]
   A) \(-\frac{15}{16}\)   B) 0
   C) \(-\frac{3}{4}\)   D) No sum

Find the explicit formula.

5) 20, 10, 0, -10, ...
   A) \(a_n = 29 - 9n\)
   B) \(a_n = 32 - 10n\)
   C) \(a_n = 31 - 11n\)
   D) \(a_n = 30 - 10n\)

6) -3, -18, -108, -648, ...
   A) \(a_n = 3 \cdot (-6)^{n-1}\)
   B) \(a_n = 4 \cdot (-6)^{n-1}\)
   C) \(a_n = -3 \cdot 6^{n-1}\)
   D) \(a_n = -4 \cdot 6^{n-1}\)
Find the term named in the problem. (Calculators Allowed)

7) 26, 36, 46, 56, ...
   Find $a_{21}$

8) $-22, -27, -32, -37, ...
   $\text{Find } a_{39}$

9) 1, $-3, 9, -27, ...
   $\text{Find } a_{11}$

10) $-4, -12, -36, -108, ...
    $\text{Find } a_{12}$

Find the missing term or terms in each arithmetic sequence.

11) ..., 11, __, __, -19, ...

12) ..., -12, __, __, __, -412, ...

Find the missing term or terms in each geometric sequence.

13) ..., 3, __, __, 648, ...

14) ..., -3, __, __, __, -768, ...

Find each coefficient described.

15) Coefficient of $ba^4$ in expansion of $(b - 2a)^5$

Find each term described.

16) 4th term in expansion of $(u + v)^5$
Answers to Chapter 10 Test (ID: 11)

1) B  
5) D  
9) $a_{11} = 59049$  
13) 18, 108

2) D  
6) C  
10) $a_{12} = -708588$  
14) $-12, -48, -192$

3) D  
7) $a_{21} = 226$  
11) 1, $-9$

4) A  
8) $a_{39} = -212$  
12) $-112, -212, -312$

15) 80  
16) $10u^2v^3$
Evaluate each arithmetic series described. (No calculators)

1) \( \sum_{m=1}^{11} (14 - 10m) \)
   A) -1027   B) -506
   C) -1018   D) -1012

2) \( a_1 = 48, \ d = 10, \ n = 10 \)
   A) 1876   B) 930
   C) 1877   D) 1870

Evaluate each geometric series described.

3) \( \sum_{m=1}^{8} 4 \cdot (-5)^{m-1} \)
   A) -350698   B) \( \frac{2}{3} \)
   C) -309831   D) -260416

Evaluate each infinite geometric series described.

4) \( \sum_{i=1}^{\infty} 3 \cdot \left( -\frac{1}{2} \right)^{i-1} \)
   A) 5   B) 2
   C) \( \frac{2}{3} \)   D) 3

Find the explicit formula.

5) 31, -169, -369, -569, ...
   A) \( a_n = -171 + 202n \)
   B) \( a_n = 235 - 204n \)
   C) \( a_n = 233 - 202n \)
   D) \( a_n = 231 - 200n \)

6) -3, -9, -27, -81, ...
   A) \( a_n = -9 \cdot \left( \frac{1}{3} \right)^{n-1} \)
   B) \( a_n = -8 \cdot \left( \frac{1}{3} \right)^{n-1} \)
   C) \( a_n = -3 \cdot \left( \frac{1}{3} \right)^{n-1} \)
   D) \( a_n = -3 \cdot 3^{n-1} \)
Find the term named in the problem. (Calculators Allowed)

7) 22, 222, 422, 622, ...  
   Find \( a_{37} \)

8) \(-6, -16, -26, -36, ...\)  
   Find \( a_{36} \)

9) 1, 2, 4, 8, ...  
   Find \( a_{12} \)

10) \(-1, 3, -9, 27, ...\)  
    Find \( a_{10} \)

Find the missing term or terms in each arithmetic sequence.

11) \(..., 25, __, __, -575, ...\)  
12) \(..., 24, __, __, __, 4, ...\)

Find the missing term or terms in each geometric sequence.

13) \(..., -3, __, __, -192, ...\)  
14) \(..., -2, __, __, __, -1250, ...\)

Find each coefficient described.

15) Coefficient of \( y^3x^2 \) in expansion of \((2y + x)^5\)

Find each term described.

16) 3rd term in expansion of \((y - 2x)^6\)
### Answers to Chapter 10 Test (ID: 12)

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<td>D</td>
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<td>7</td>
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<tr>
<td>9</td>
<td>$a_{12} = 2048$</td>
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<tr>
<td>13</td>
<td>$-12, -48$</td>
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<tr>
<td>16</td>
<td>$60y^4x^2$</td>
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<td>19, 14, 9</td>
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