Grade 11u Mathematics

Review Sequences

Date_____

Determine if the sequence is arithmetic. If it is, find the common difference, the 52nd term, the term named in the problem, and the explicit formula.

1) 11, 4, −3, −10, ...
Find a_{39}

2) 18, −182, −382, −582, ...
Find a_{23}

3) −34, −24, −14, −4, ...
Find a_{38}

4) −33, −233, −433, −633, ...
Find a_{22}

5) 19, −1, −21, −41, ...
Find a_{28}

6) −26, −17, −8, 1, ...
Find a_{35}

7) 19, 219, 419, 619, ...
Find a_{32}

8) 11, 19, 27, 35, ...
Find a_{31}

9) −26, −16, −6, 4, ...
Find a_{40}

10) 3, 13, 23, 33, ...
Find a_{34}

Determine if the sequence is geometric. If it is, find the common ratio, the term named in the problem, and the explicit formula.

11) 6, 62, 622, 6222, ...
Find a_{12}

12) −1, −2, −6, −24, ...
Find a_{12}

13) −3, 6, −12, 24, ...
Find a_{10}

14) 11, 114, 1144, 11444, ...
Find a_{9}

15) −2, 4, −8, 16, ...
Find a_{9}

16) −6, 24, −126, 624, ...
Find a_{12}

17) 1, 3, 9, 27, ...
Find a_{10}

18) −3, 12, −48, 192, ...
Find a_{9}

19) 1, 4, 16, 64, ...
Find a_{10}

20) 4, 8, 16, 32, ...
Find a_{11}

Write the explicit formula for each sequence.

21) −2.5, −5, −10, −20, −40, ...

22) $\frac{3}{2}, \frac{5}{4}, \frac{7}{8}, \frac{9}{16}, \frac{11}{32}, \ldots$

23) 2, 5, 10, 17, 26, ...

24) 6, 26, 126, 626, 3126, ...

25) 3, −15, 75, −375, 1875, ...

26) $2, \frac{1}{2}, \frac{8}{27}, \frac{1}{4}, \frac{32}{125}, \ldots$

27) 4, 16, 36, 64, 100, ...

28) 1, 9, 25, 49, 81, ...

29) 0, 6, −6, 18, −30, ...

30) −1, −4, −16, −64, −256, ...

Answers to Review Sequences (ID: 1)

1) Common Difference: $d = -7$
$a_{52} = -346$
$a_{39} = -255$
Explicit: $a_n = 18 - 7n$

2) Common Difference: $d = -200$
$a_{52} = -10182$
$a_{23} = -4382$
Explicit: $a_n = 218 - 200n$

3) Common Difference: $d = 10$
$a_{52} = 476$
$a_{38} = 336$
Explicit: $a_n = -44 + 10n$

4) Common Difference: $d = -200$
$a_{52} = -10233$
$a_{22} = -4233$
Explicit: $a_n = 167 - 200n$

5) Common Difference: $d = -20$
$a_{52} = -1001$
$a_{28} = -521$
Explicit: $a_n = 39 - 20n$

6) Common Difference: $d = 9$
$a_{52} = 433$
$a_{35} = 280$
Explicit: $a_n = -35 + 9n$

7) Common Difference: $d = 200$
$a_{52} = 10219$
$a_{32} = 6219$
Explicit: $a_n = -181 + 200n$

8) Common Difference: $d = 8$
$a_{52} = 419$
$a_{31} = 251$
Explicit: $a_n = 3 + 8n$

9) Common Difference: $d = 10$
$a_{52} = 484$
$a_{40} = 364$
Explicit: $a_n = -36 + 10n$

10) Common Difference: $d = 10$
$a_{52} = 513$
$a_{34} = 333$
Explicit: $a_n = -7 + 10n$

11) Not geometric

12) Not geometric

13) Common Ratio: $r = -2$
$a_{10} = 1536$
Explicit: $a_n = -3 \cdot (-2)^{n-1}$

14) Not geometric

15) Common Ratio: $r = -2$
$a_9 = -512$
Explicit: $a_n = -2 \cdot (-2)^{n-1}$

16) Not geometric

17) Common Ratio: $r = 3$
$a_{10} = 19683$
Explicit: $a_n = 3^{n-1}$

18) Common Ratio: $r = -4$
$a_9 = -196608$
Explicit: $a_n = -3 \cdot (-4)^{n-1}$

19) Common Ratio: $r = 4$
$a_{10} = 262144$
Explicit: $a_n = 4^{n-1}$

20) Common Ratio: $r = 2$
$a_{11} = 4096$
Explicit: $a_n = 4 \cdot 2^{n-1}$

21) $a_n = -2.5 \cdot 2^{n-1}$

22) $a_n = \dfrac{2n+1}{2^n}$

23) $a_n = n^2 + 1$

24) $a_n = 5^n + 1$

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

26) $a_n = \dfrac{2^n}{n^3}$

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

28) $a_n = (2n-1)^2$

29) $a_n = (-2)^n + 2$

30) $a_n = -4^{n-1}$

Grade 11u Mathematics

Review Sequences

Date_____

Determine if the sequence is arithmetic. If it is, find the common difference, the 52nd term, the term named in the problem, and the explicit formula.

1) 1, 4, 16, 64, ...
Find a_{21}

2) −16, −25, −34, −43, ...
Find a_{40}

3) 1, −2, 4, −8, ...
Find a_{21}

4) 28, 37, 46, 55, ...
Find a_{23}

5) 179, 1792, 17922, 179222, ...
Find a_{21}

6) 21, 51, 81, 111, ...
Find a_{26}

7) −3, 9, −27, 81, ...
Find a_{21}

8) −16, −24, −32, −40, ...
Find a_{35}

9) −24, −124, −224, −324, ...
Find a_{26}

10) 21, 14, 7, 0, ...
Find a_{31}

Determine if the sequence is geometric. If it is, find the common ratio, the term named in the problem, and the explicit formula.

11) −2, −4, −8, −16, ...
Find a_9

12) 3, 6, 12, 24, ...
Find a_9

13) −3, −6, −12, −24, ...
Find a_{12}

14) 4, 8, 16, 32, ...
Find a_9

15) 3, 9, 27, 81, ...
Find a_9

16) 3, −6, 12, −24, ...
Find a_{11}

17) −3, 6, −12, 24, ...
Find a_{12}

18) −4, −8, −16, −32, ...
Find a_{10}

19) −1, 2, −4, 8, ...
Find a_{12}

20) 1, 3, 9, 27, ...
Find a_{11}

Write the explicit formula for each sequence.

21) −21, −23, −25, −27, −29, ...

22) −3, 3, −9, 15, −33, ...

23) $-\frac{3}{4}, -\frac{3}{5}, -\frac{1}{2}, -\frac{3}{7}, -\frac{3}{8}, \ldots$

24) 1, 9, 25, 49, 81, ...

25) 2, 22, 122, 622, 3122, ...

26) 22, 28, 34, 40, 46, ...

27) −4, −1, 2, 5, 8, ...

28) 4, 16, 36, 64, 100, ...

29) −32, 68, 168, 268, 368, ...

30) 3, 6, 11, 18, 27, ...

Answers to Review Sequences (ID: 2)

1) Not arithmetic

2) Common Difference: $d = -9$
$a_{52} = -475$
$a_{40} = -367$
Explicit: $a_n = -7 - 9n$

3) Not arithmetic

4) Common Difference: $d = 9$
$a_{52} = 487$
$a_{23} = 226$
Explicit: $a_n = 19 + 9n$

5) Not arithmetic

6) Common Difference: $d = 30$
$a_{52} = 1551$
$a_{26} = 771$
Explicit: $a_n = -9 + 30n$

7) Not arithmetic

8) Common Difference: $d = -8$
$a_{52} = -424$
$a_{35} = -288$
Explicit: $a_n = -8 - 8n$

9) Common Difference: $d = -100$
$a_{52} = -5124$
$a_{26} = -2524$
Explicit: $a_n = 76 - 100n$

10) Common Difference: $d = -7$
$a_{52} = -336$
$a_{31} = -189$
Explicit: $a_n = 28 - 7n$

11) Common Ratio: $r = 2$
$a_9 = -512$
Explicit: $a_n = -2 \cdot 2^{n-1}$

12) Common Ratio: $r = 2$
$a_9 = 768$
Explicit: $a_n = 3 \cdot 2^{n-1}$

13) Common Ratio: $r = 2$
$a_{12} = -6144$
Explicit: $a_n = -3 \cdot 2^{n-1}$

14) Common Ratio: $r = 2$
$a_9 = 1024$
Explicit: $a_n = 4 \cdot 2^{n-1}$

15) Common Ratio: $r = 3$
$a_9 = 19683$
Explicit: $a_n = 3 \cdot 3^{n-1}$

16) Common Ratio: $r = -2$
$a_{11} = 3072$
Explicit: $a_n = 3 \cdot (-2)^{n-1}$

17) Common Ratio: $r = -2$
$a_{12} = 6144$
Explicit: $a_n = -3 \cdot (-2)^{n-1}$

18) Common Ratio: $r = 2$
$a_{10} = -2048$
Explicit: $a_n = -4 \cdot 2^{n-1}$

19) Common Ratio: $r = -2$
$a_{12} = 2048$
Explicit: $a_n = -(-2)^{n-1}$

20) Common Ratio: $r = 3$
$a_{11} = 59049$
Explicit: $a_n = 3^{n-1}$

21) $a_n = -19 - 2n$

22) $a_n = (-2)^n - 1$

23) $a_n = -\dfrac{3}{n+3}$

24) $a_n = (2n-1)^2$

25) $a_n = 5^n - 3$

26) $a_n = 16 + 6n$

27) $a_n = -7 + 3n$

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

29) $a_n = -132 + 100n$

30) $a_n = n^2 + 2$

Grade 11u Mathematics

Review Sequences

Date_____

Determine if the sequence is arithmetic. If it is, find the common difference, the 52nd term, the term named in the problem, and the explicit formula.

1) 38, 47, 56, 65, ...
Find a_{23}

2) 2, 102, 202, 302, ...
Find a_{32}

3) 38, 45, 52, 59, ...
Find a_{40}

4) 2, 32, 62, 92, ...
Find a_{37}

5) −6, 194, 394, 594, ...
Find a_{31}

6) −35, 65, 165, 265, ...
Find a_{25}

7) −6, 1, 8, 15, ...
Find a_{35}

8) −35, −5, 25, 55, ...
Find a_{20}

9) 31, 21, 11, 1, ...
Find a_{35}

10) 39, 48, 57, 66, ...
Find a_{28}

Determine if the sequence is geometric. If it is, find the common ratio, the term named in the problem, and the explicit formula.

11) 1, 3, 9, 27, ...
Find a_{11}

12) 3, −12, 48, −192, ...
Find a_{10}

13) 2, 10, 50, 250, ...
Find a_{9}

14) 3, 9, 27, 81, ...
Find a_{11}

15) −3, −9, −27, −81, ...
Find a_{11}

16) −2, −8, −32, −128, ...
Find a_{9}

17) 4, 12, 36, 108, ...
Find a_{12}

18) −1, 3, −9, 27, ...
Find a_{11}

19) 1, 4, 16, 64, ...
Find a_{10}

20) −2, −6, −18, −54, ...
Find a_{11}

Write the explicit formula for each sequence.

21) 6, 206, 406, 606, 806, ...

22) −22, −17, −12, −7, −2, ...

23) $5, \frac{15}{4}, 3, \frac{5}{2}, \frac{15}{7}, \ldots$

24) −37, −29, −21, −13, −5, ...

25) −2, 1, 6, 13, 22, ...

26) −33, −41, −49, −57, −65, ...

27) 31, 37, 43, 49, 55, ...

28) $\frac{1}{2}, \frac{7}{6}, \frac{11}{6}, \frac{5}{2}, \frac{19}{6}, \ldots$

29) 4, 16, 36, 64, 100, ...

30) 17, 8, −1, −10, −19, ...

Answers to Review Sequences (ID: 3)

1) Common Difference: $d = 9$
$a_{52} = 497$
$a_{23} = 236$
Explicit: $a_n = 29 + 9n$

2) Common Difference: $d = 100$
$a_{52} = 5102$
$a_{32} = 3102$
Explicit: $a_n = -98 + 100n$

3) Common Difference: $d = 7$
$a_{52} = 395$
$a_{40} = 311$
Explicit: $a_n = 31 + 7n$

4) Common Difference: $d = 30$
$a_{52} = 1532$
$a_{37} = 1082$
Explicit: $a_n = -28 + 30n$

5) Common Difference: $d = 200$
$a_{52} = 10194$
$a_{31} = 5994$
Explicit: $a_n = -206 + 200n$

6) Common Difference: $d = 100$
$a_{52} = 5065$
$a_{25} = 2365$
Explicit: $a_n = -135 + 100n$

7) Common Difference: $d = 7$
$a_{52} = 351$
$a_{35} = 232$
Explicit: $a_n = -13 + 7n$

8) Common Difference: $d = 30$
$a_{52} = 1495$
$a_{20} = 535$
Explicit: $a_n = -65 + 30n$

9) Common Difference: $d = -10$
$a_{52} = -479$
$a_{35} = -309$
Explicit: $a_n = 41 - 10n$

10) Common Difference: $d = 9$
$a_{52} = 498$
$a_{28} = 282$
Explicit: $a_n = 30 + 9n$

11) Common Ratio: $r = 3$
$a_{11} = 59049$
Explicit: $a_n = 3^{n-1}$

12) Common Ratio: $r = -4$
$a_{10} = -786432$
Explicit: $a_n = 3 \cdot (-4)^{n-1}$

13) Common Ratio: $r = 5$
$a_9 = 781250$
Explicit: $a_n = 2 \cdot 5^{n-1}$

14) Common Ratio: $r = 3$
$a_{11} = 177147$
Explicit: $a_n = 3 \cdot 3^{n-1}$

15) Common Ratio: $r = 3$
$a_{11} = -177147$
Explicit: $a_n = -3 \cdot 3^{n-1}$

16) Common Ratio: $r = 4$
$a_9 = -131072$
Explicit: $a_n = -2 \cdot 4^{n-1}$

17) Common Ratio: $r = 3$
$a_{12} = 708588$
Explicit: $a_n = 4 \cdot 3^{n-1}$

18) Common Ratio: $r = -3$
$a_{11} = -59049$
Explicit: $a_n = -(-3)^{n-1}$

19) Common Ratio: $r = 4$
$a_{10} = 262144$
Explicit: $a_n = 4^{n-1}$

20) Common Ratio: $r = 3$
$a_{11} = -118098$
Explicit: $a_n = -2 \cdot 3^{n-1}$

21) $a_n = -194 + 200n$

22) $a_n = -27 + 5n$

23) $a_n = \dfrac{15}{n+2}$

24) $a_n = -45 + 8n$

25) $a_n = n^2 - 3$

26) $a_n = -25 - 8n$

27) $a_n = 25 + 6n$

28) $a_n = -\dfrac{1}{6} + \dfrac{2}{3}n$

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

30) $a_n = 26 - 9n$

Grade 11u Mathematics

Review Sequences

Date_____

Determine if the sequence is arithmetic. If it is, find the common difference, the 52nd term, the term named in the problem, and the explicit formula.

1) −33, −39, −45, −51, ...
Find a_{27}

2) 12, 3, −6, −15, ...
Find a_{32}

3) −33, −40, −47, −54, ...
Find a_{23}

4) 12, 20, 28, 36, ...
Find a_{28}

5) 19, −11, −41, −71, ...
Find a_{29}

6) −25, −125, −225, −325, ...
Find a_{25}

7) −25, −45, −65, −85, ...
Find a_{37}

8) −25, −225, −425, −625, ...
Find a_{20}

9) −17, −12, −7, −2, ...
Find a_{38}

10) 20, 24, 28, 32, ...
Find a_{34}

Determine if the sequence is geometric. If it is, find the common ratio, the term named in the problem, and the explicit formula.

11) −3, 9, −27, 81, ...
Find a_{12}

12) 2, −6, 18, −54, ...
Find a_{10}

13) −4, −8, −16, −32, ...
Find a_{10}

14) 1, −3, 9, −27, ...
Find a_{12}

15) 4, 12, 36, 108, ...
Find a_{10}

16) 3, −9, 27, −81, ...
Find a_{11}

17) 4, 16, 64, 256, ...
Find a_{9}

18) −1, 2, −4, 8, ...
Find a_{12}

19) −1, −2, −4, −8, ...
Find a_{12}

20) −4, 8, −16, 32, ...
Find a_{11}

Write the explicit formula for each sequence.

21) 4, 10, 16, 22, 28, ...

22) −5, 1, −11, 13, −35, ...

23) $\frac{3}{7}, \frac{27}{14}, \frac{24}{7}, \frac{69}{14}, \frac{45}{7}, \ldots$

24) $-\frac{1}{10}, \frac{7}{5}, \frac{29}{10}, \frac{22}{5}, \frac{59}{10}, \ldots$

25) $4, 3, \frac{12}{5}, 2, \frac{12}{7}, \ldots$

26) −23, −15, −7, 1, 9, ...

27) $\frac{9}{10}, \frac{37}{30}, \frac{47}{30}, \frac{19}{10}, \frac{67}{30}, \ldots$

28) −12, 18, 48, 78, 108, ...

29) 2, 5, 10, 17, 26, ...

30) $\frac{7}{4}, \frac{13}{4}, \frac{19}{4}, \frac{25}{4}, \frac{31}{4}, \ldots$

Answers to Review Sequences (ID: 4)

1) Common Difference: $d = -6$
$a_{52} = -339$
$a_{27} = -189$
Explicit: $a_n = -27 - 6n$

2) Common Difference: $d = -9$
$a_{52} = -447$
$a_{32} = -267$
Explicit: $a_n = 21 - 9n$

3) Common Difference: $d = -7$
$a_{52} = -390$
$a_{23} = -187$
Explicit: $a_n = -26 - 7n$

4) Common Difference: $d = 8$
$a_{52} = 420$
$a_{28} = 228$
Explicit: $a_n = 4 + 8n$

5) Common Difference: $d = -30$
$a_{52} = -1511$
$a_{29} = -821$
Explicit: $a_n = 49 - 30n$

6) Common Difference: $d = -100$
$a_{52} = -5125$
$a_{25} = -2425$
Explicit: $a_n = 75 - 100n$

7) Common Difference: $d = -20$
$a_{52} = -1045$
$a_{37} = -745$
Explicit: $a_n = -5 - 20n$

8) Common Difference: $d = -200$
$a_{52} = -10225$
$a_{20} = -3825$
Explicit: $a_n = 175 - 200n$

9) Common Difference: $d = 5$
$a_{52} = 238$
$a_{38} = 168$
Explicit: $a_n = -22 + 5n$

10) Common Difference: $d = 4$
$a_{52} = 224$
$a_{34} = 152$
Explicit: $a_n = 16 + 4n$

11) Common Ratio: $r = -3$
$a_{12} = 531441$
Explicit: $a_n = -3 \cdot (-3)^{n-1}$

12) Common Ratio: $r = -3$
$a_{10} = -39366$
Explicit: $a_n = 2 \cdot (-3)^{n-1}$

13) Common Ratio: $r = 2$
$a_{10} = -2048$
Explicit: $a_n = -4 \cdot 2^{n-1}$

14) Common Ratio: $r = -3$
$a_{12} = -177147$
Explicit: $a_n = (-3)^{n-1}$

15) Common Ratio: $r = 3$
$a_{10} = 78732$
Explicit: $a_n = 4 \cdot 3^{n-1}$

16) Common Ratio: $r = -3$
$a_{11} = 177147$
Explicit: $a_n = 3 \cdot (-3)^{n-1}$

17) Common Ratio: $r = 4$
$a_9 = 262144$
Explicit: $a_n = 4 \cdot 4^{n-1}$

18) Common Ratio: $r = -2$
$a_{12} = 2048$
Explicit: $a_n = -(-2)^{n-1}$

19) Common Ratio: $r = 2$
$a_{12} = -2048$
Explicit: $a_n = -2^{n-1}$

20) Common Ratio: $r = -2$
$a_{11} = -4096$
Explicit: $a_n = -4 \cdot (-2)^{n-1}$

21) $a_n = -2 + 6n$

22) $a_n = (-2)^n - 3$

23) $a_n = -\frac{15}{14} + \frac{3}{2}n$

24) $a_n = -\frac{8}{5} + \frac{3}{2}n$

25) $a_n = \frac{12}{n+2}$

26) $a_n = -31 + 8n$

27) $a_n = \frac{17}{30} + \frac{1}{3}n$

28) $a_n = -42 + 30n$

29) $a_n = n^2 + 1$

30) $a_n = \frac{1}{4} + \frac{3}{2}n$

Grade 11u Mathematics

Review Sequences

Date_____

Determine if the sequence is arithmetic. If it is, find the common difference, the 52nd term, the term named in the problem, and the explicit formula.

1) 29, 129, 229, 329, ...
Find a_{25}

2) 22, 29, 36, 43, ...
Find a_{36}

3) −15, −6, 3, 12, ...
Find a_{33}

4) 29, 19, 9, −1, ...
Find a_{29}

5) 22, 15, 8, 1, ...
Find a_{20}

6) −7, −17, −27, −37, ...
Find a_{34}

7) −15, −115, −215, −315, ...
Find a_{20}

8) 37, 31, 25, 19, ...
Find a_{26}

9) −7, −2, 3, 8, ...
Find a_{33}

10) −7, −11, −15, −19, ...
Find a_{21}

Determine if the sequence is geometric. If it is, find the common ratio, the term named in the problem, and the explicit formula.

11) 2, −4, 8, −16, ...
Find a_{12}

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

13) 1, −2, 4, −8, ...
Find a_{11}

14) −3, 9, −27, 81, ...
Find a_{12}

15) 3, 6, 12, 24, ...
Find a_{10}

16) −1, −3, −9, −27, ...
Find a_{11}

17) 4, 12, 36, 108, ...
Find a_{12}

18) −4, −12, −36, −108, ...
Find a_{10}

19) −1, 4, −16, 64, ...
Find a_{9}

20) −2, 8, −32, 128, ...
Find a_{9}

Write the explicit formula for each sequence.

21) −39, −34, −29, −24, −19, ...

22) 25, 28, 31, 34, 37, ...

23) −17, −24, −31, −38, −45, ...

24) $-2, -\frac{3}{2}, -1, -\frac{1}{2}, 0, \ldots$

25) 14, 44, 74, 104, 134, ...

26) −14, 6, 26, 46, 66, ...

27) 3, 5, 9, 17, 33, ...

28) 4, 16, 36, 64, 100, ...

29) $\frac{1}{2}, 2, \frac{27}{8}, 4, \frac{125}{32}, \ldots$

30) $\frac{6}{5}, \frac{23}{15}, \frac{28}{15}, \frac{11}{5}, \frac{38}{15}, \ldots$

Answers to Review Sequences (ID: 5)

1) Common Difference: $d = 100$
$a_{52} = 5129$
$a_{25} = 2429$
Explicit: $a_n = -71 + 100n$

2) Common Difference: $d = 7$
$a_{52} = 379$
$a_{36} = 267$
Explicit: $a_n = 15 + 7n$

3) Common Difference: $d = 9$
$a_{52} = 444$
$a_{33} = 273$
Explicit: $a_n = -24 + 9n$

4) Common Difference: $d = -10$
$a_{52} = -481$
$a_{29} = -251$
Explicit: $a_n = 39 - 10n$

5) Common Difference: $d = -7$
$a_{52} = -335$
$a_{20} = -111$
Explicit: $a_n = 29 - 7n$

6) Common Difference: $d = -10$
$a_{52} = -517$
$a_{34} = -337$
Explicit: $a_n = 3 - 10n$

7) Common Difference: $d = -100$
$a_{52} = -5115$
$a_{20} = -1915$
Explicit: $a_n = 85 - 100n$

8) Common Difference: $d = -6$
$a_{52} = -269$
$a_{26} = -113$
Explicit: $a_n = 43 - 6n$

9) Common Difference: $d = 5$
$a_{52} = 248$
$a_{33} = 153$
Explicit: $a_n = -12 + 5n$

10) Common Difference: $d = -4$
$a_{52} = -211$
$a_{21} = -87$
Explicit: $a_n = -3 - 4n$

11) Common Ratio: $r = -2$
$a_{12} = -4096$
Explicit: $a_n = 2 \cdot (-2)^{n-1}$

12) Common Ratio: $r = 2$
$a_9 = 256$
Explicit: $a_n = 2^{n-1}$

13) Common Ratio: $r = -2$
$a_{11} = 1024$
Explicit: $a_n = (-2)^{n-1}$

14) Common Ratio: $r = -3$
$a_{12} = 531441$
Explicit: $a_n = -3 \cdot (-3)^{n-1}$

15) Common Ratio: $r = 2$
$a_{10} = 1536$
Explicit: $a_n = 3 \cdot 2^{n-1}$

16) Common Ratio: $r = 3$
$a_{11} = -59049$
Explicit: $a_n = -3^{n-1}$

17) Common Ratio: $r = 3$
$a_{12} = 708588$
Explicit: $a_n = 4 \cdot 3^{n-1}$

18) Common Ratio: $r = 3$
$a_{10} = -78732$
Explicit: $a_n = -4 \cdot 3^{n-1}$

19) Common Ratio: $r = -4$
$a_9 = -65536$
Explicit: $a_n = -(-4)^{n-1}$

20) Common Ratio: $r = -4$
$a_9 = -131072$
Explicit: $a_n = -2 \cdot (-4)^{n-1}$

21) $a_n = -44 + 5n$

22) $a_n = 22 + 3n$

23) $a_n = -10 - 7n$

24) $a_n = -\frac{5}{2} + \frac{1}{2}n$

25) $a_n = -16 + 30n$

26) $a_n = -34 + 20n$

27) $a_n = 2^n + 1$

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

29) $a_n = \frac{n^3}{2^n}$

30) $a_n = \frac{13}{15} + \frac{1}{3}n$