

تم تحميل هذا الملف من موقع المناهج الإماراتية



## ملزمة وفق الهيكل الوزاري منهج ريفيل

موقع المناهج ← المناهج الإماراتية ← الصف الحادي عشر المتقدم ← رياضيات ← الفصل الثالث ← الملف

تاريخ إضافة الملف على موقع المناهج: 20:27:19 2024-05-17

إعداد: محمد زياد

## التواصل الاجتماعي بحسب الصف الحادي عشر المتقدم



اضغط هنا للحصول على جميع روابط "الصف الحادي عشر المتقدم"

## روابط مواد الصف الحادي عشر المتقدم على تلغرام

[الرياضيات](#)

[اللغة الانجليزية](#)

[اللغة العربية](#)

[التربية الاسلامية](#)

## المزيد من الملفات بحسب الصف الحادي عشر المتقدم والمادة رياضيات في الفصل الثالث

[نموذج امتحان نهاية الفصل وفق الهيكل الوزاري](#)

1

[الهيكل الوزاري الجديد المسار النخبة](#)

2

[تجميع أسئلة وفق الهيكل الوزاري الجديد](#)

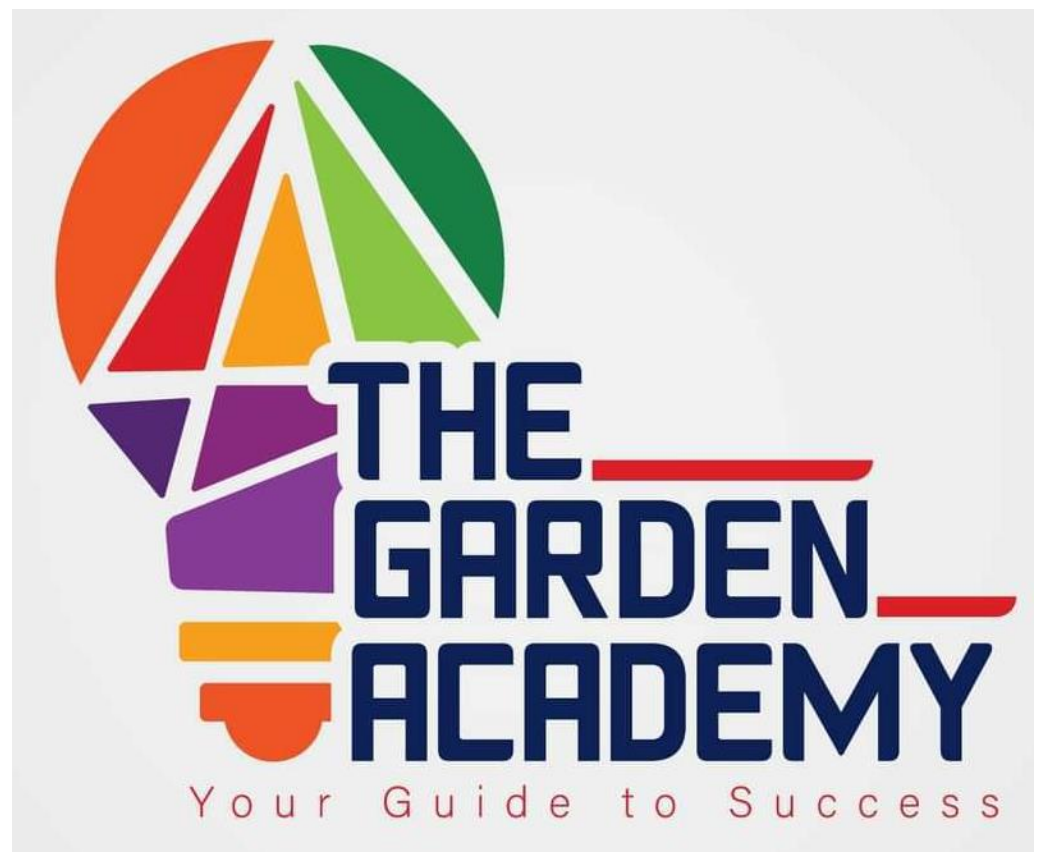
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[الهيكل الوزاري الجديد منهج ريفيل المسار المتقدم](#)

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[الهيكل الوزاري الجديد منهج بريدج المسار المتقدم](#)

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هيكل 11ADV حكومي



**EOT Term 3**  
**2023/2024**

المادة: الرياضيات  
المدرس: محمد زياد



## Multiple Choice 60

1	Graph points with polar coordinates. التمثيل البياني للنقاط باستخدام إحداثياتها القطبية.	Exercises (14-21)	P488
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Find three different pairs of polar coordinates that name the given point if  $-360^\circ \leq \theta \leq 360^\circ$  or  $-2\pi \leq \theta \leq 2\pi$ . (Example 3)

14.  $(1, 150^\circ)$

15.  $(-2, 300^\circ)$

16.  $(4, -\frac{7\pi}{6})$

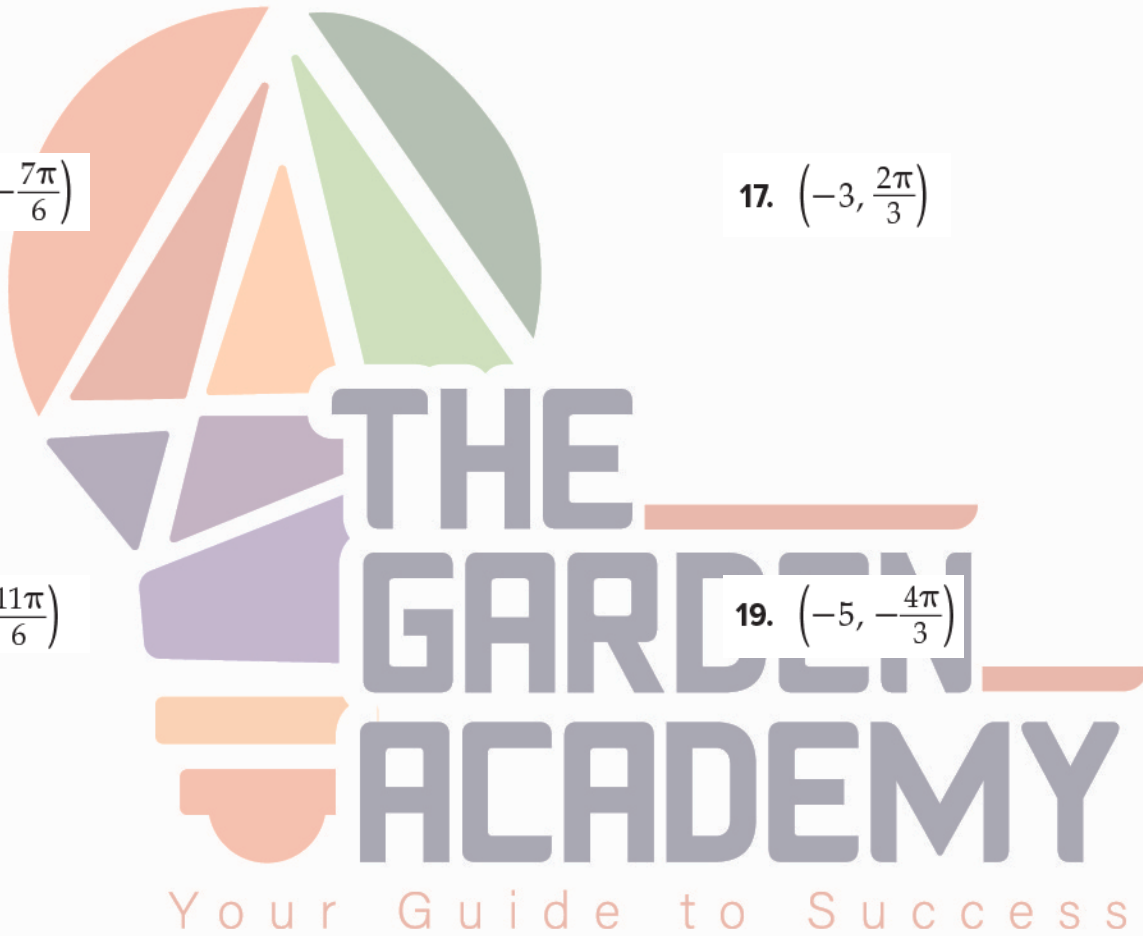
17.  $(-3, \frac{2\pi}{3})$

18.  $(5, \frac{11\pi}{6})$

19.  $(-5, -\frac{4\pi}{3})$

20.  $(2, -30^\circ)$

21.  $(-1, -240^\circ)$





2	Graph simple polar equations.	Exercises (30-41)	P488
	التمثيل البياني للمعادلات القطبية البسيطة.		

Find the distance between each pair of points. (Example 5)

30.  $(2, 30^\circ), (5, 120^\circ)$

31.  $(3, \frac{\pi}{2}), (8, \frac{4\pi}{3})$

32.  $(6, 45^\circ), (-3, 300^\circ)$

33.  $(7, -\frac{\pi}{3}), (1, \frac{2\pi}{3})$

34.  $(-5, \frac{7\pi}{6}), (4, \frac{\pi}{6})$

35.  $(4, -315^\circ), (1, 60^\circ)$

36.  $(-2, -30^\circ), (8, 210^\circ)$

37.  $(-3, \frac{11\pi}{6}), (-2, \frac{5\pi}{6})$

38.  $(1, -\frac{\pi}{4}), (-5, \frac{7\pi}{6})$

39.  $(7, -90^\circ), (-4, -330^\circ)$

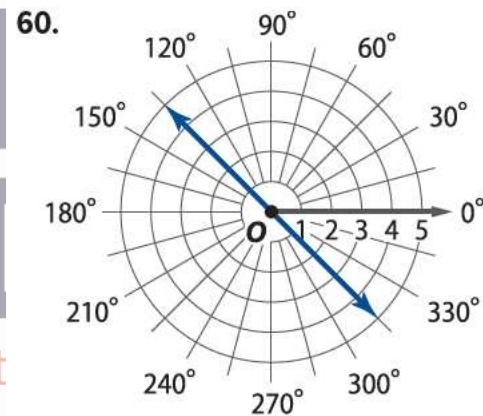
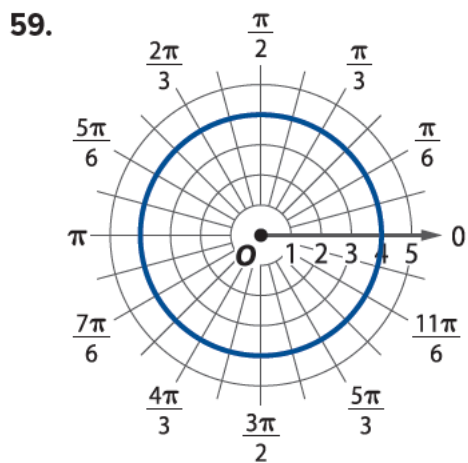
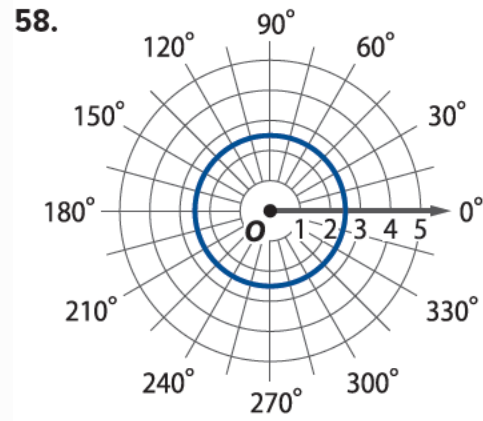
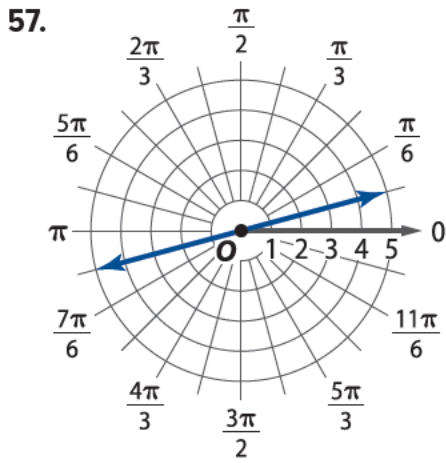
40.  $(8, -\frac{2\pi}{3}), (4, -\frac{3\pi}{4})$

41.  $(-5, 135^\circ), (-1, 240^\circ)$



3	Graph simple polar equations.	Exercises (57-60)	P488
	التمثيل البياني للمعادلات القطبية البسيطة.		

Write an equation for each polar graph.



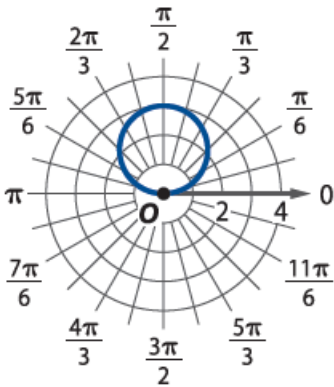
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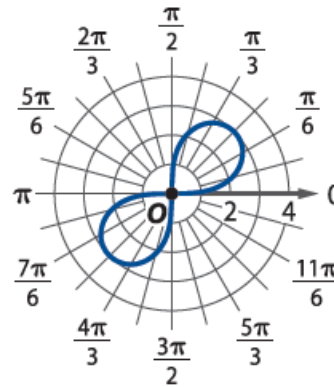
4	Identify and graph classical curves.	Exercises (35-40)	P498
	تحديد المنحنيات الكلاسيكية وتمثيلها بيانيا.		

Write an equation for each graph.

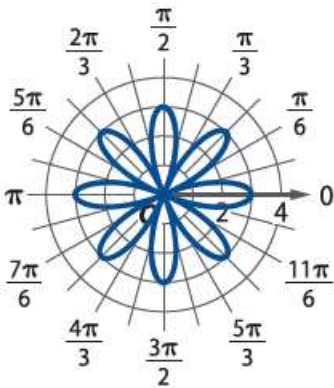
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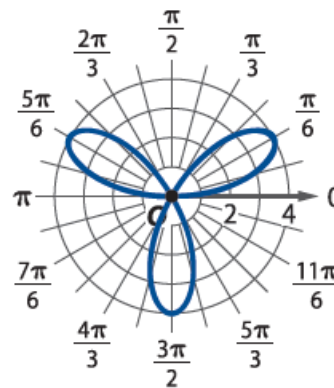
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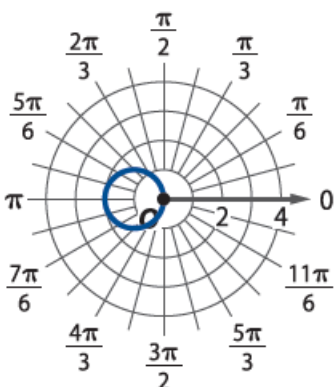
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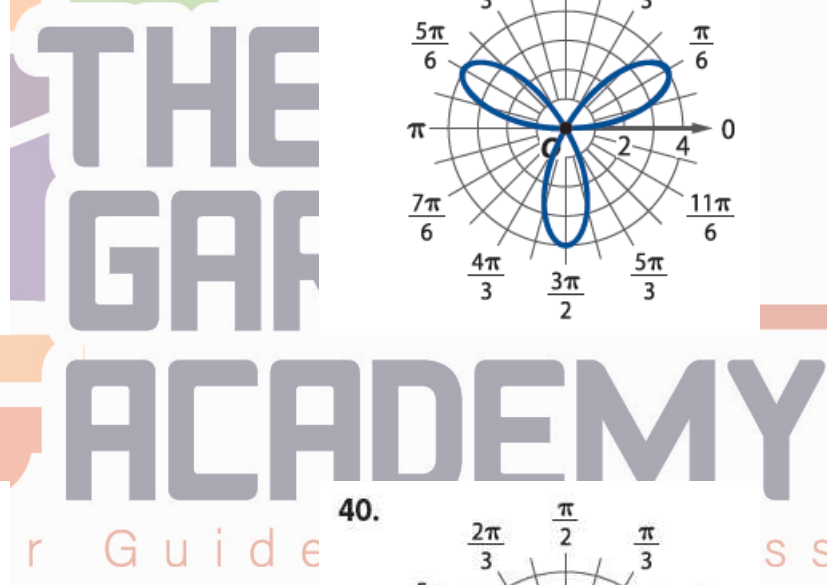
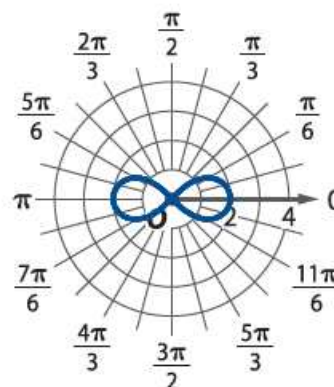
38.



39.



40.





5	Convert between polar and rectangular coordinates.	Exercises (13-24)	P507
	التحويل بين الإحداثيات القطبية والديكارتية.		

Find two pairs of polar coordinates for each point with the given rectangular coordinates if  $0 \leq \theta \leq 2\pi$ . Round to the nearest hundredth, if necessary. (Example 2)

13.  $(7, 10)$

14.  $(-13, 4)$

15.  $(-6, -12)$

16.  $(4, -12)$

17.  $(2, -3)$

18.  $(0, -173)$





19.  $(a, 3a), a > 0$

20.  $(-14, 14)$

21.  $(52, -31)$

22.  $(3b, -4b), b > 0$

23.  $(1, -1)$

24.  $(2, \sqrt{2})$



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6	Find products quotients, powers, and roots of complex numbers in polar form.	Exercises (26-35)	P527
	إيجاد ناتج ضرب الأعداد المركبة وناتج قسمتها وأسسها والجذور في الصورة القطبية.		

Find each product or quotient, and express it in rectangular form. (Examples 4 and 5)

26.  $6\left(\cos \frac{\pi}{2} + i \sin \frac{\pi}{2}\right) \cdot 4\left(\cos \frac{\pi}{4} + i \sin \frac{\pi}{4}\right)$

27.  $5(\cos 135^\circ + i \sin 135^\circ) \cdot 2(\cos 45^\circ + i \sin 45^\circ)$

28.  $3\left(\cos \frac{3\pi}{4} + i \sin \frac{3\pi}{4}\right) \div \frac{1}{2}(\cos \pi + i \sin \pi)$

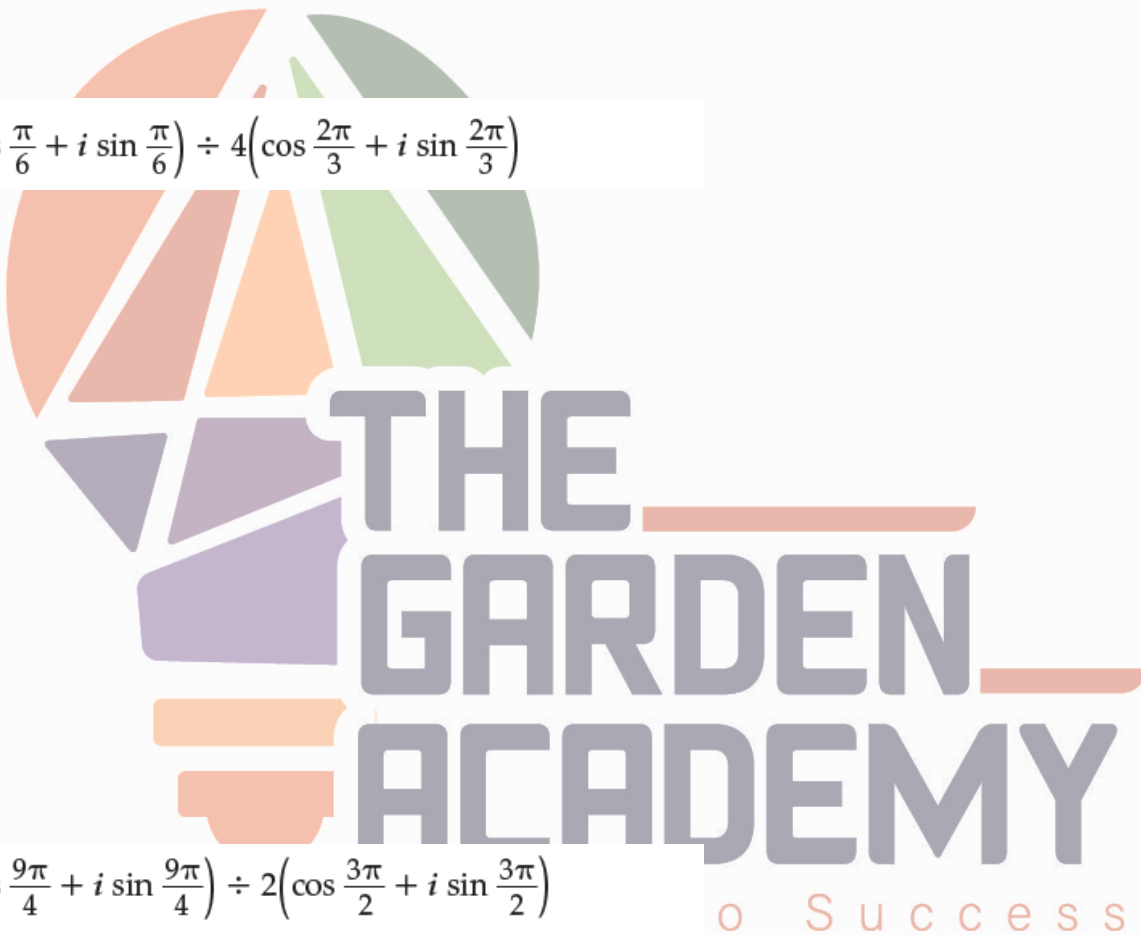
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29.  $2(\cos 90^\circ + i \sin 90^\circ) \cdot 2(\cos 270^\circ + i \sin 270^\circ)$

30.  $3\left(\cos \frac{\pi}{6} + i \sin \frac{\pi}{6}\right) \div 4\left(\cos \frac{2\pi}{3} + i \sin \frac{2\pi}{3}\right)$

31.  $4\left(\cos \frac{9\pi}{4} + i \sin \frac{9\pi}{4}\right) \div 2\left(\cos \frac{3\pi}{2} + i \sin \frac{3\pi}{2}\right)$





$$32. \frac{1}{2}(\cos 60^\circ + i \sin 60^\circ) \cdot 6(\cos 150^\circ + i \sin 150^\circ)$$

$$33. 6\left(\cos \frac{3\pi}{4} + i \sin \frac{3\pi}{4}\right) \div 2\left(\cos \frac{\pi}{4} + i \sin \frac{\pi}{4}\right)$$



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$$34. 5(\cos 180^\circ + i \sin 180^\circ) \cdot 2(\cos 135^\circ + i \sin 135^\circ)$$

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$$35. \frac{1}{2}\left(\cos \frac{\pi}{3} + i \sin \frac{\pi}{3}\right) \div 3\left(\cos \frac{\pi}{6} + i \sin \frac{\pi}{6}\right)$$



7	Relate arithmetic sequences to linear functions.	Guided Practice3	P542
	ربط المتتاليات الحسابية بالدوال الخطية.		

**MONEY** Usama's employer offers him a pay rate of AED 33 per hour with a AED 0.50 raise every three months. How much will Usama earn per hour after 3 years?





8	Investigate several different types of sequences. استكشاف عدة أنواع مختلفة من المتتاليات.	Exercises (18-27)	P553
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Determine whether each sequence is *convergent* or *divergent*. (Example 4)

18.  $a_1 = 4, 1.5a_{n-1}, n \geq 2$

19.  $a_n = \frac{5}{10^n}$





20.  $a_n = -n^2 - 8n + 106$

21.  $a_1 = -64, \frac{3}{4}a_{n-1}, n \geq 2$



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22.  $a_1 = 1, a_n = 4 - a_{n-1}$   
 $n \geq 2$

23.  $a_n = n^2 - 3n + 1$



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24.  $a_n = \frac{n^2 + 4}{3 + n}$

25.  $a_1 = 9, a_n = \frac{a_{n-1} + 3}{2}, n \geq 2$



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26.  $a_n = \frac{5n + 6}{n}$

27.  $a_n = \frac{5n}{5^n} + 1$



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9	Use sigma notation to represent and calculate sums of series.	Exercises (36-45)	P553
	استخدام الرمز سيغما في تمثيل مجموع المتسلسلات وحسابها.		

Find each sum.

$$36. \sum_{n=1}^8 (6n - 11)$$

$$37. \sum_{n=4}^{11} (30 - 4n)$$

$$38. \sum_{n=1}^7 [n^2(n - 5)]$$

$$39. \sum_{n=2}^7 (n^2 - 6n + 1)$$



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$$40. \sum_{n=8}^{15} \left(\frac{n}{4} - 7\right)$$



$$41. \sum_{n=1}^{10} [(n-4)^2(n-5)]$$

$$42. \sum_{n=0}^6 [(-2)^n - 9]$$

$$43. \sum_{n=1}^3 7\left(\frac{1}{10}\right)^{2n}$$

$$44. \sum_{n=1}^{\infty} 5\left(\frac{1}{10^n}\right)$$

$$45. \sum_{n=1}^{\infty} \frac{8}{10^n}$$





10	Find the $n$ th term and arithmetic means for arithmetic sequences. إيجاد الحد النوني والأوساط الحسابية للمتتاليات.	Exercises (20-31)	P562
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Write an equation for the  $n$ th term of each arithmetic sequence.

20. 24, 35, 46, ...

21. 31, 17, 3, ...

22.  $a_9 = 45, d = -3$

23.  $a_7 = 21, d = 5$





24.  $a_4 = 12, d = 0.25$

25.  $a_5 = 1.5, d = 4.5$

26.  $9, 2, -5, \dots$

27.  $a_6 = 22, d = 9$



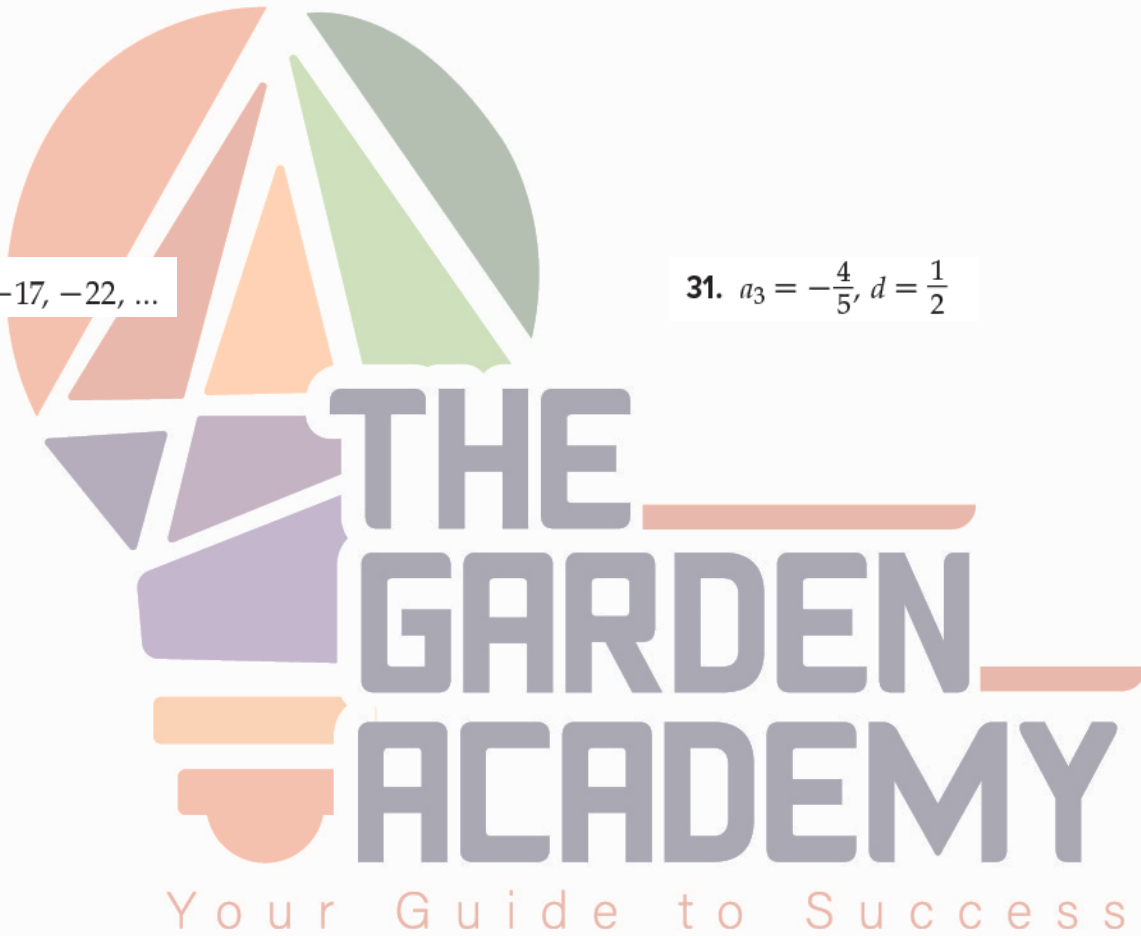


28.  $a_8 = -8, d = -2$

29.  $a_{15} = 7, d = \frac{2}{3}$

30.  $-12, -17, -22, \dots$

31.  $a_3 = -\frac{4}{5}, d = \frac{1}{2}$





11	Find sums of arithmetic series. إيجاد مجاميع المتسلسلات الحسابية.	Exercises (39-46)	P563
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Find the sum of each arithmetic series.

39. the first 100 even natural numbers

40. the first 200 odd natural numbers

41. the first 100 odd natural numbers

42. the first 300 even natural numbers



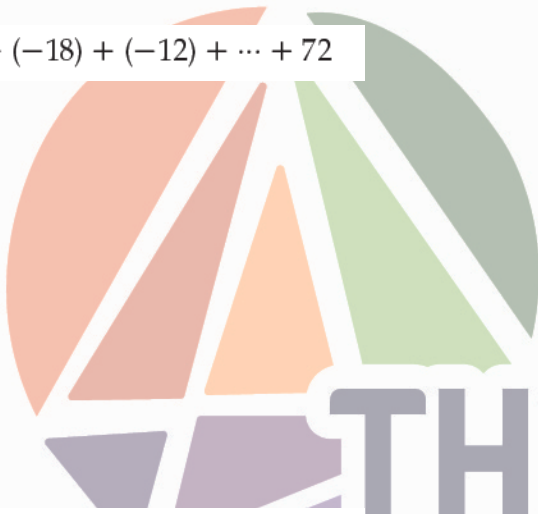


43.  $-18 + (-15) + (-12) + \dots + 66$

44.  $-24 + (-18) + (-12) + \dots + 72$

45.  $a_1 = -16, d = 6, n = 24$

46.  $n = 19, a_n = 154, d = 8$



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12

Find the nth term and geometric means for geometric sequences.

Exercises (35-40)

P570

إيجاد الحد النوني والأوساط الهندسية للمتتاليات.

Find the geometric means of each sequence.

35. 810, ?, ?, ?, 10

36. 640, ?, ?, ?, 2.5

37.  $\frac{7}{2}$ , ?, ?, ?,  $\frac{56}{81}$

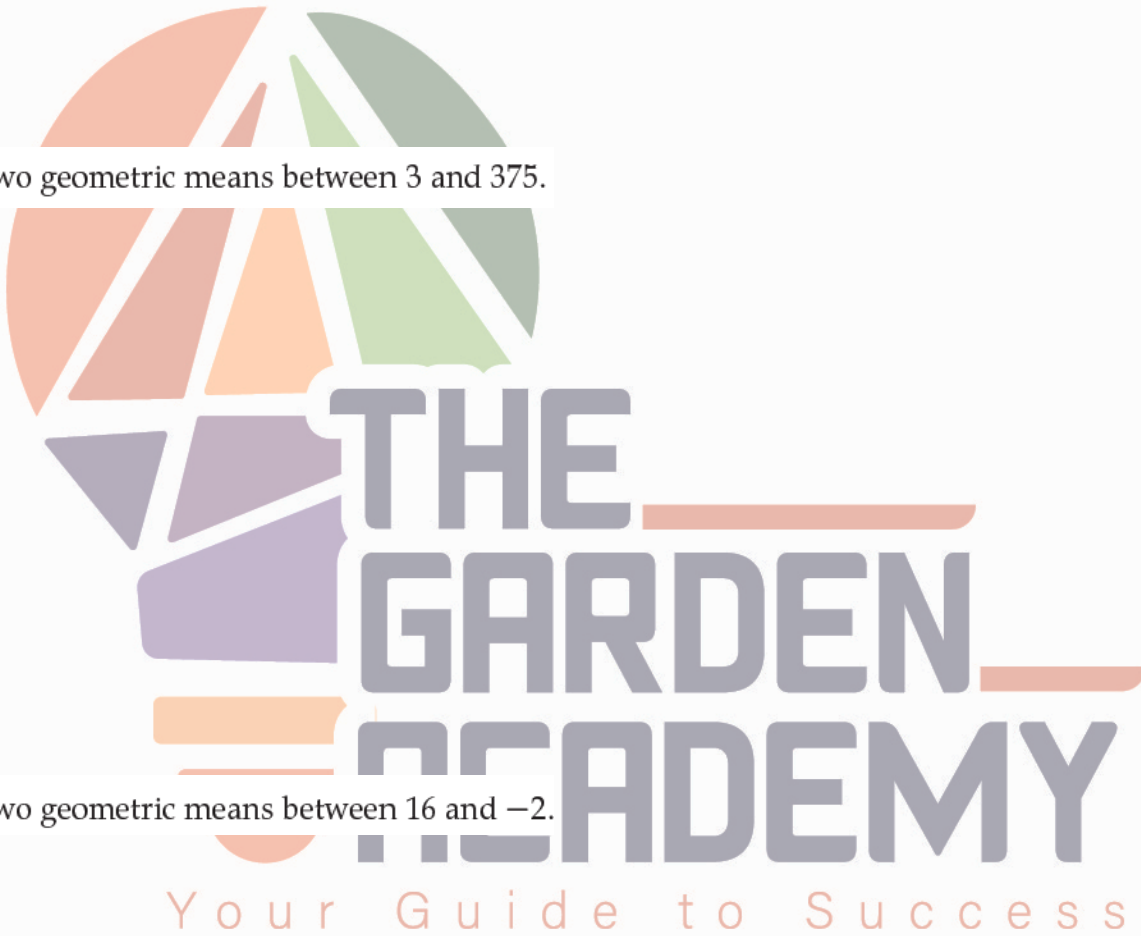




38.  $\frac{729}{64}, ?, ?, ?, \frac{324}{9}$

39. Find two geometric means between 3 and 375.

40. Find two geometric means between 16 and  $-2$ .





13	Find sums of geometric series. إيجاد مجاميع المتسلسلات الهندسية.	Exercises (57-63)	P571
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57. **SCIENCE** One minute after it is released, a gas-filled balloon has risen 100 meters. In each succeeding minute, the balloon rises only 50% as far as it rose in the previous minute. How far will it rise in 5 minutes?



58. **CHEMISTRY** Radon has a half-life of about 4 days. This means that about every 4 days, half of the mass of radon decays into another element. How many grams of radon remain from an initial 60 grams after 4 weeks?

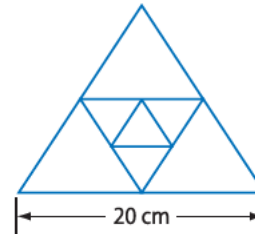




59. **REASONING** A virus goes through a computer, infecting the files. If one file was infected initially and the total number of files infected doubles every minute, how many files will be infected in 20 minutes?



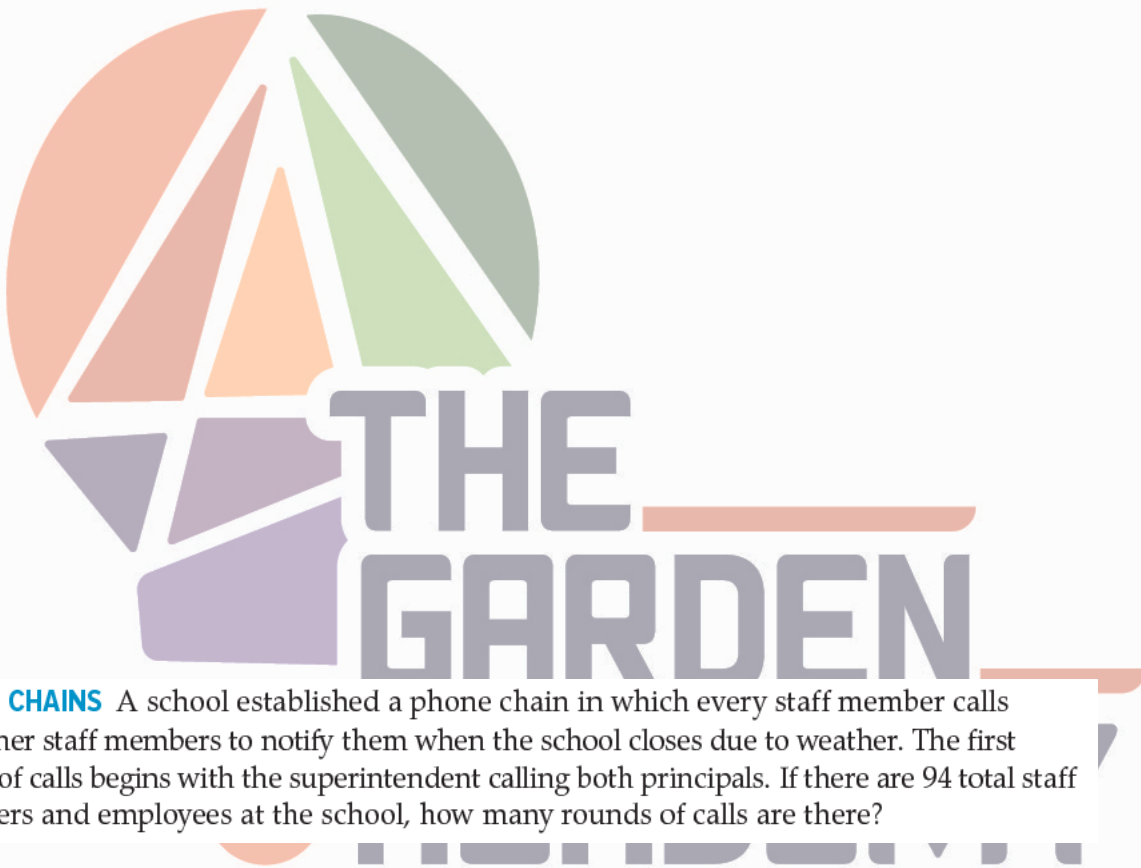
60. **GEOMETRY** In the figure, the sides of each equilateral triangle are twice the size of the sides of its inscribed triangle. If the pattern continues, find the sum of the perimeters of the first eight triangles.



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61. **PENDULUMS** The first swing of a pendulum travels 30 centimeters. If each subsequent swing travels 95% as far as the previous swing, find the total distance traveled by the pendulum after the 30th swing.



62. **PHONE CHAINS** A school established a phone chain in which every staff member calls two other staff members to notify them when the school closes due to weather. The first round of calls begins with the superintendent calling both principals. If there are 94 total staff members and employees at the school, how many rounds of calls are there?

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63. **TELEVISIONS** High Tech Electronics advertises a weekly installment plan for the purchase of a popular brand of high definition television. The buyer pays AED 15 at the end of the first week, AED 16.50 at the end of the second week, AED 18.15 at the end of the third week, and so on for one year. (Assume that 1 year = 52 weeks.)
- What will the payments be at the end of the 10th, 20th, and 40th weeks?
  - Find the total cost of the TV.
  - Why is the cost found in part **b** not entirely accurate?





14

Find sums of infinite geometric series.

إيجاد مجاميع المتسلسلات الهندسية اللانهائية.

Exercises (44-49)

P581

Find the sum of each infinite series, if it exists.

44.  $\frac{7}{5} + \frac{21}{20} + \frac{63}{80} + \dots$

45.  $\frac{15}{4} + \frac{5}{2} + \frac{5}{3} + \dots$

46.  $-\frac{16}{9} + \frac{4}{3} - 1 + \dots$

47.  $\frac{15}{8} + \frac{5}{2} + \frac{10}{3} + \dots$

48.  $\frac{21}{16} + \frac{7}{4} + \frac{7}{3} + \dots$

49.  $-\frac{18}{7} + \frac{12}{7} - \frac{8}{7} + \dots$

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15

Write repeating decimals as fractions.

كتابة الكسور العشرية المتكررة في صورة كسور اعتيادية.

Exercises (35-40)

P581

Write each repeating decimal as a fraction.

35.  $0.\overline{321}$

36.  $0.\overline{145}$

37.  $2.\overline{18}$







38.  $4.\overline{96}$

39.  $0.12\overline{14}$

40.  $0.43\overline{36}$





## Free response 40

16	Convert between polar and rectangular equations. التحويل بين المعادلات القطبية والديكارتية.	Exercises (26-35)	P507
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Identify the graph of each rectangular equation. Then write the equation in polar form. Support your answer by graphing the polar form of the equation. (Example 4)

26.  $x = -2$

27.  $(x + 5)^2 + y^2 = 25$

28.  $y = -3$

29.  $x = y^2$





30.  $(x - 2)^2 + y^2 = 4$

31.  $(x - 1)^2 - y^2 = 1$

32.  $x^2 + (y + 3)^2 = 9$

33.  $y = \sqrt{3}x$

34.  $x^2 + (y + 1)^2 = 1$

35.  $x^2 + (y - 8)^2 = 64$





17

Find products quotients, powers, and roots of complex numbers in polar form.

إيجاد ناتج ضرب الأعداد المركبة وناتج قسمتها وأسسها والجذور في الصورة القطبية.

Exercises (36-45)

P527

Find each power, and express it in rectangular form.

(Example 6)

36.  $(2 + 2\sqrt{3}i)^6$

37.  $(12i - 5)^3$





38.  $\left[4\left(\cos \frac{\pi}{2} + i \sin \frac{\pi}{2}\right)\right]^4$

39.  $(\sqrt{3} - i)^3$





40.  $(3 - 5i)^4$

41.  $(2 + 4i)^4$





42.  $(3 - 6i)^4$

43.  $(2 + 3i)^2$





44.  $\left[3\left(\cos \frac{\pi}{6} + i \sin \frac{\pi}{6}\right)\right]^3$

45.  $\left[2\left(\cos \frac{\pi}{4} + i \sin \frac{\pi}{4}\right)\right]^4$



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18	Investigate several different types of sequences.	Exercises (12-15)	P553
	استكشاف عدة أنواع مختلفة من المتتاليات.		

Find the specified term of each sequence.

12. 4th term,  $a_1 = 5$ ,  $a_n = -3a_{n-1} + 10$ ,  $n \geq 2$

13. 7th term,  $a_1 = 14$ ,  $a_n = 0.5a_{n-1} + 3$ ,  $n \geq 2$

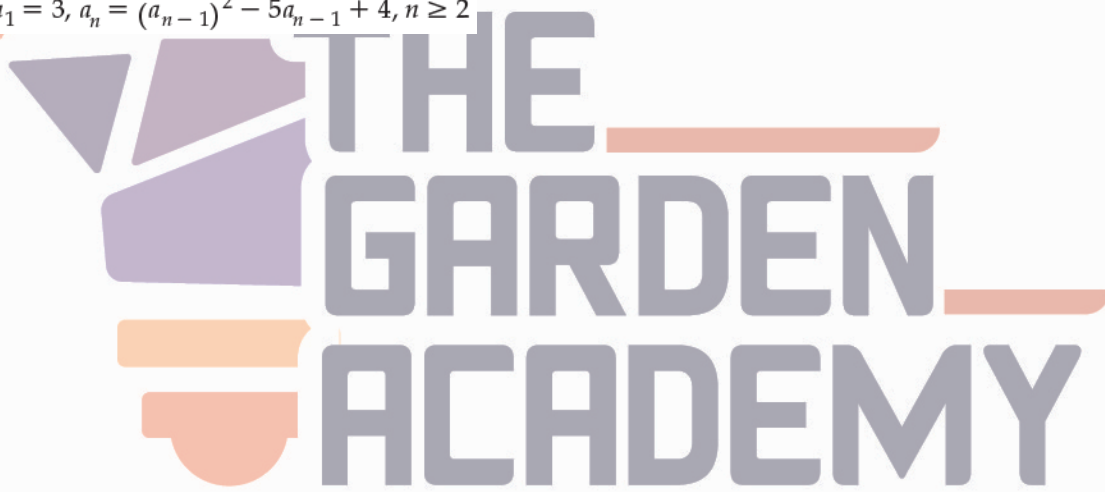






14. 4th term,  $a_1 = 0, a_n = 3^{a_n - 1}, n \geq 2$

15. 3rd term,  $a_1 = 3, a_n = (a_{n-1})^2 - 5a_{n-1} + 4, n \geq 2$



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19

Find the nth term and arithmetic means for arithmetic sequences.

إيجاد الحد النوني والأوساط الحسابية للمتتاليات.

Exercises (33-38)

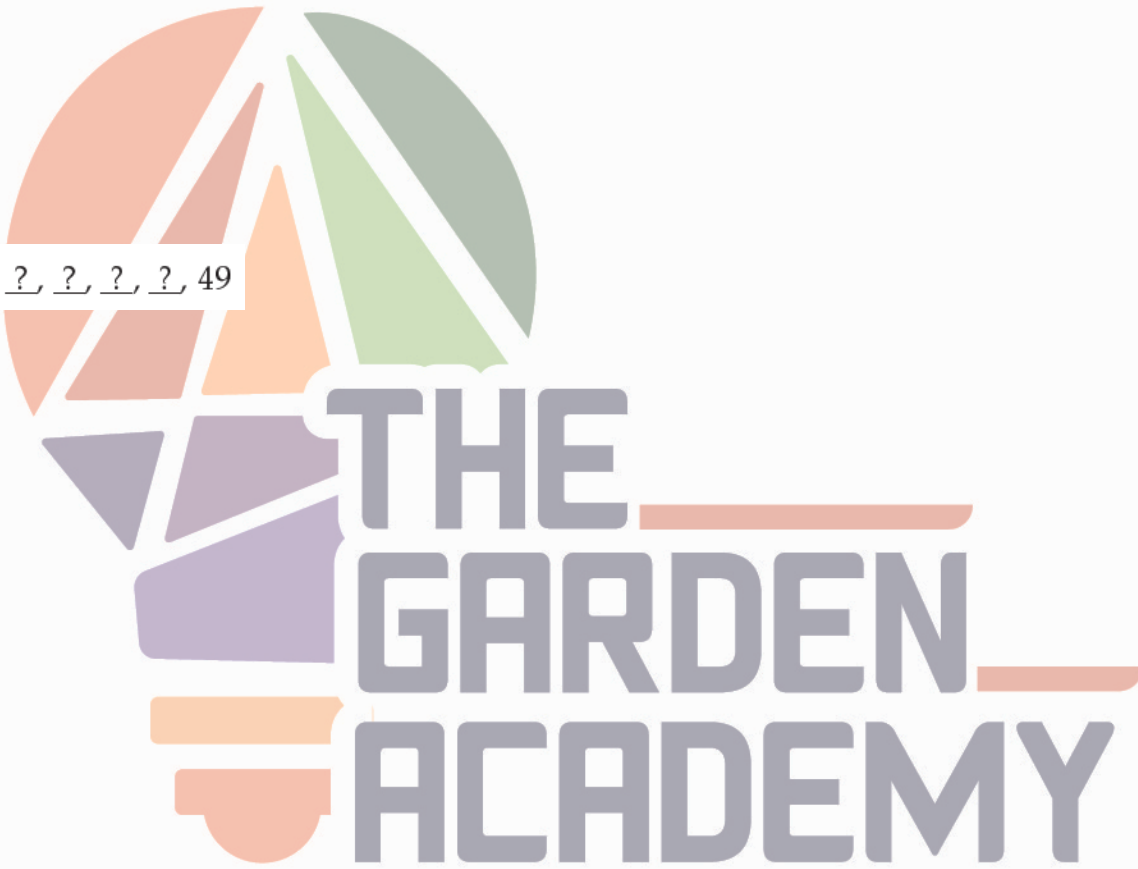
P562

Find the arithmetic means in each sequence.

33. 24, ?, ?, ?, ?, -1

34. -6, ?, ?, ?, ?, 49

35. -28, ?, ?, ?, ?, ?, 7 ur Guide to Success





36. 84, ?, ?, ?, ?, 39

37. -12, ?, ?, ?, ?, ?, -66

38. 182, ?, ?, ?, ?, ?, 104





20 Use the Binomial Theorem to write and find the coefficients of specified terms in binomial expansions.

استخدام نظرية ذات الحدين لكتابة وإيجاد معاملات حدود معينة في التعابير ذات الحدين.

Exercises (23-28)

P596

Find the indicated term of each expression.

23. third term of  $(x + 2z)^7$

24. fourth term of  $(y - 3x)^6$



25. seventh term of  $(2a - 2b)^8$



26. sixth term of  $(4x + 5y)^6$

27. fifth term of  $(x - 4)^9$

28. fourth term of  $(c + 6)^8$

