

تم تحميل هذا الملف من موقع المناهج الإماراتية



تجميع أسئلة وفق الهيكل الوزاري منهج ريفيل

موقع المناهج ← المناهج الإماراتية ← الصف الحادي عشر العام ← رياضيات ← الفصل الأول ← مذكرات وبنوك ← الملف

تاريخ إضافة الملف على موقع المناهج: 2024-10-31 23:23:13

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منهج انجليزي | ملخصات وتقارير | مذكرات وبنوك | الامتحان النهائي | للمدرس

المزيد من مادة
رياضيات:

إعداد: Daher Maysa

التواصل الاجتماعي بحسب الصف الحادي عشر العام



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الحادي عشر العام والمادة رياضيات في الفصل الأول

ملزمة تجميع أسئلة وفق الهيكل الوزاري منهج بريدج

1

تجميع أسئلة وفق الهيكل الوزاري الجديد منهج بريدج

2

الهيكل الوزاري الجديد المسار العام منهج بريدج

3

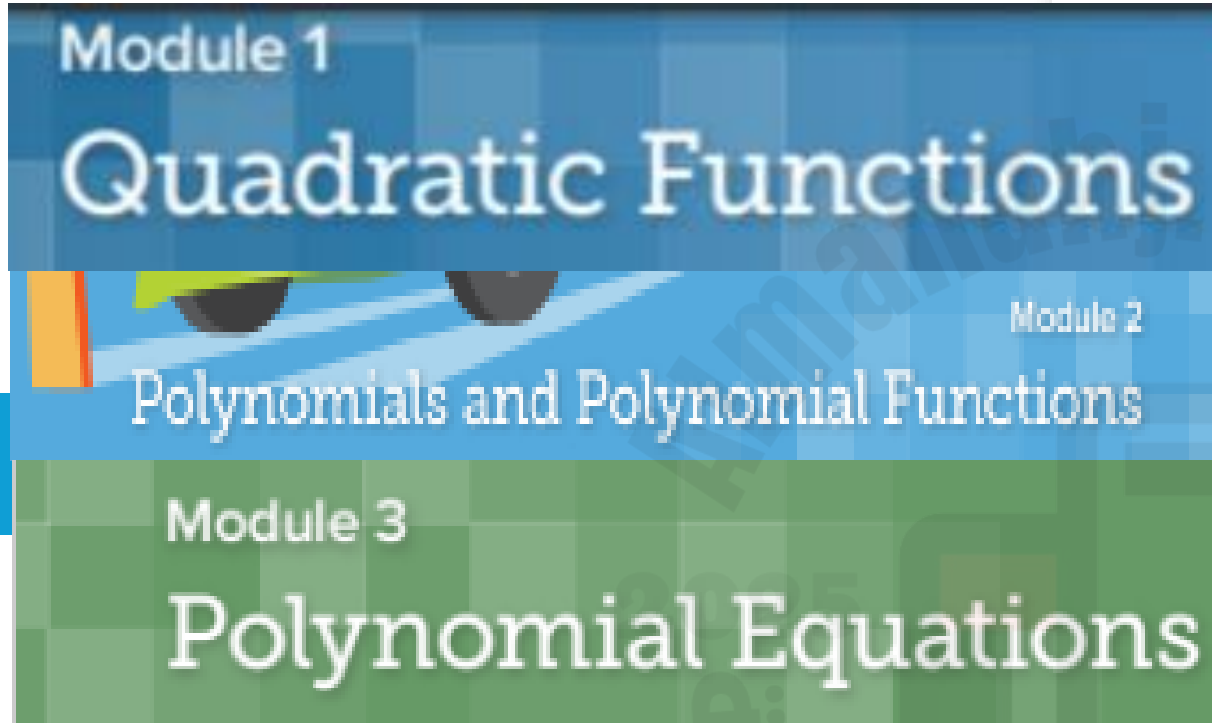
الهيكل الوزاري الجديد المسار العام منهج ريفيل

4

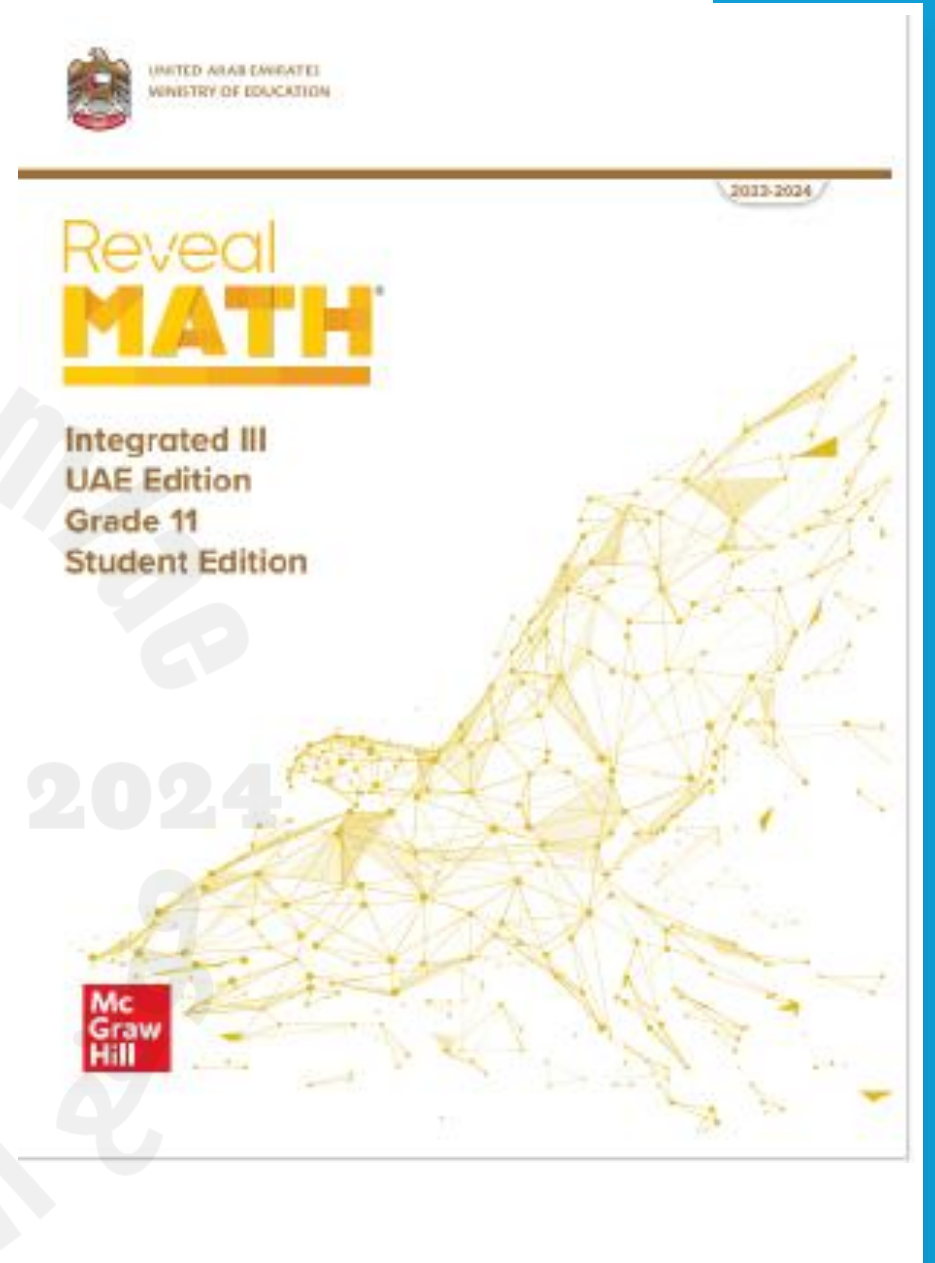
حل أوراق عمل دروس الوحدة الرابعة كثيرات الحدود والدوال كثيرة الحدود

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Grade 11 G



Done by
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Al Tomouh School



Question*	Learning Outcome/Performance Criteria**	Reference(s) in the Student Book (English Version)	
		المراجع في كتاب الطالب (النسخة الإنجليزية)	
		Example/Exercise	Page
السؤال*	نتائج التعلم / معايير الأداء**	مثال / تمرين	الصفحة

1	Find and interpret the average rate of change of quadratic functions given symbolically, in tables, and in graphs	Exercises (13-21)	P10
2	Solve quadratic equations by graphing	Exercises (1-10)	P17
3	Solve quadratic equations by graphing	Exercises (50-53)	P19
4	Perform operations with complex numbers	Exercises (1-12)	P25
5	Perform operations with complex numbers	Exercises (25-37)	P25
6	Solve quadratic equations by factoring	Exercises(15-32)	P41
7	Complete the square in the case of a trinomial that is not a perfect square	Exercises (19-24)	P39
8	Solve quadratic equations by completing the square	Exercises (44-49)	P40
9	Solve quadratic inequalities in one variable	Exercises (21-29)	P55

10	Graph polynomial functions and locate their zeros	Example5	P77
11	Find the relative maxima and minima of polynomial functions	Example2	P84
12	Add, subtract, and multiply polynomials	Exercises (30-39)	P98
13	Divide polynomials using synthetic division	Exercises (11-16)	P105
14	Determine whether a binomial is a factor of a polynomial by using synthetic substitution	Exercises (23-30)	P139
15	Graph vertical translations of trigonometric functions.	Exercises(1-10)	P127
16	Graph quadratic functions	Exercises (27-32)	P11
17	Solve quadratic equations by using the Quadratic Formula	Exercises(8-23)	P47
18	Solve quadratic equations by factoring	Exercises (31-34)	P107
19	Use Pascal's Triangle to write binomial expansions	Exercises (1-12)	P111
20	Factorize polynomials	Example2	P120
*	Questions might appear in a different order in the actual exam.		
*	تظهر الأسئلة بترتيب مختلف في الامتحان الفعلي.		
**	As it appears in the textbook, LMS, and (Main_IP).		
**	كما وردت في كتاب الطالب وLMS والنسخة النصائية.		

لاستخدام الامتحان
PRQ - DM

الأسئلة الموضوعة - MCQ

Quadratic Functions

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	Explore Factoring the Sum of Two Squares	
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	Explore Finding the Solutions of Quadratic Equations by Factoring	
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Example 4

Determine the average rate of change of $f(x)$ over the specified interval.

13. $f(x) = x^2 - 10x + 5$; interval $[-4, 4]$

14. $f(x) = 2x^2 + 4x - 6$; interval $[-3, 3]$

15. $f(x) = 3x^2 - 3x + 1$; interval $[-5, 5]$

16. $f(x) = 4x^2 + x + 3$; interval $[-2, 2]$

17. $f(x) = 2x^2 - 11$; interval $[-3, 3]$

18. $f(x) = -2x^2 + 8x + 7$; interval $[-4, 4]$

Example 5

Determine the average rate of change of $f(x)$ over the specified interval.

19. interval $[-3, 3]$

x	$f(x)$
-3	0
-2	3
-1	-4
0	-3
1	0
2	5

20. interval $[-4, 4]$

x	$f(x)$
-4	-27
-2	-3
0	5
2	-3
4	-27

21. interval $[-2, 2]$

x	$f(x)$
-2	-3
-1	-3
0	-1
1	3
2	9

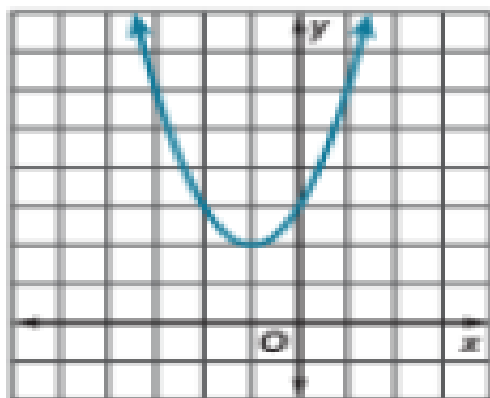
Practice

 **Go Online** You can complete your homework online.

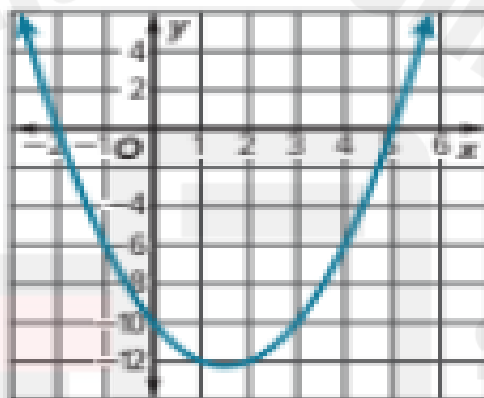
Example 1

Use the related graph of each equation to determine its solutions.

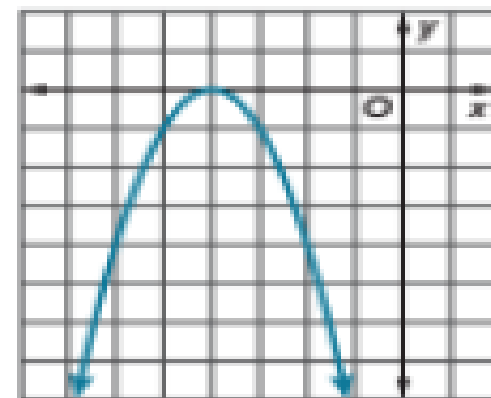
1. $x^2 + 2x + 3 = 0$



2. $x^2 - 3x - 10 = 0$



3. $-x^2 - 8x - 16 = 0$



Solve each equation by graphing.

4. $x^2 - 10x + 21 = 0$

5. $4x^2 + 4x + 1 = 0$

6. $x^2 + x - 6 = 0$

7. $x^2 + 2x - 3 = 0$

8. $-x^2 - 6x - 9 = 0$

9. $x^2 - 6x + 5 = 0$

10. $x^2 + 2x + 3 = 0$

11. $x^2 - 3x - 10 = 0$

12. $-x^2 - 8x - 16 = 0$

REGULARITY Use a quadratic equation to find two real numbers that satisfy each situation, or show that no such numbers exist.

50. Their sum is 4, and their product is -117 .

51. Their sum is 12, and their product is -85 .

52. Their sum is -13 , and their product is 42.

53. Their sum is -8 , and their product is -209 .

Practice

 **Go Online** You can complete your homework online.

Examples 1 and 2

Simplify.

1. $\sqrt{-48}$

2. $\sqrt{-63}$

3. $\sqrt{-72}$

4. $\sqrt{-24}$

5. $\sqrt{-84}$

6. $\sqrt{-99}$

7. $\sqrt{-23} \cdot \sqrt{-46}$

8. $\sqrt{-6} \cdot \sqrt{-3}$

9. $\sqrt{-5} \cdot \sqrt{-10}$

10. $(3i)(-2i)(5i)$

11. i^{11}

12. $4(-6i)^2$

Examples 5 and 6

Simplify.

25. $(6 + j) + (4 - 5j)$

27. $(5 - j) - (3 - 2j)$

29. $(6 - 3j) + (4 - 2j)$

31. $(2 + j)(3 - j)$

32. $(5 - 2j)(4 - j)$

33. $(4 - 2j)(1 - 2j)$

34. **ELECTRICITY** Using the formula $V = CI$, find the voltage V in a circuit when the current $C = 3 - j$ amps and the impedance $I = 3 + 2j$ ohms.

Example 7

Simplify.

35. $\frac{5}{3 + j}$

36. $\frac{7 - 13j}{2j}$

37. $\frac{6 - 5j}{3j}$

Examples 5-7

Solve each equation by factoring. Check your solution.

15. $x^2 = 64$

16. $x^2 - 100 = 0$

17. $289 = x^2$

18. $x^2 + 14 = 50$

19. $x^2 - 169 = 0$

20. $124 = x^2 + 3$

21. $4x^2 - 28x + 49 = 0$

22. $9x^2 + 6x = -1$

23. $16x^2 - 24x + 13 = 4$

24. $81x^2 + 36x = -4$

25. $25x^2 + 80x + 64 = 0$

26. $9x^2 + 60x + 95 = -5$

27. $x^2 + 12 = -13$

28. $x^2 + 100 = 0$

29. $x^2 = -225$

30. $x^2 + 4 = 0$

31. $36x^2 = -25$

32. $64x^2 = -49$

Example 4

Find the value of c that makes each trinomial a perfect square. Then write the trinomial as a perfect square trinomial.

19. $x^2 + 10x + c$

20. $x^2 - 14x + c$

21. $x^2 + 24x + c$

22. $x^2 + 5x + c$

23. $x^2 - 9x + c$

24. $x^2 - x + c$

Examples 9 and 10

Write each function in vertex form. Find the axis of symmetry. Then find the vertex, and determine if it is a *maximum* or *minimum*.

44. $y = x^2 + 2x - 5$

45. $y = x^2 + 6x + 1$

46. $y = -x^2 + 4x + 2$

47. $y = -x^2 - 8x - 5$

48. $y = 2x^2 + 4x + 3$

49. $y = 3x^2 + 6x - 1$

Mixed Exercises

Solve each quadratic inequality by using a graph, a table, or algebraically.

21. $-2x^2 + 12x < -15$

22. $5x^2 + x + 3 \geq 0$

23. $11 \leq 4x^2 + 7x$

24. $x^2 - 4x \leq -7$

25. $-3x^2 + 10x < 5$

26. $-1 \geq -x^2 - 5x$

27. $x^2 + 2x + 1 > 0$

28. $x^2 - 3x + 2 \leq 0$

29. $x^2 + 10x + 7 \geq 0$

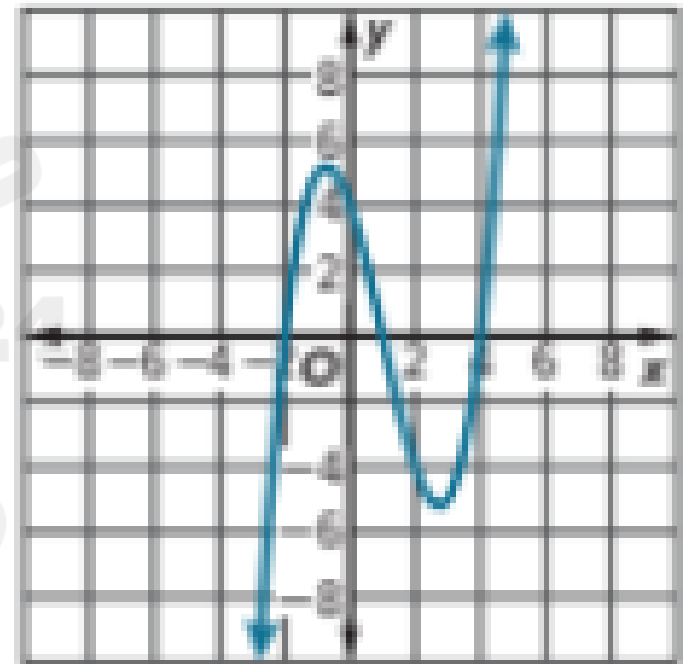
Polynomials and Polynomial Functions

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Example 5 Zeros of a Polynomial Function

Use the graph to state the number of real zeros of the function.

The real zeros occur at $x = -2$, 1 , and 4 , so there are three real zeros.

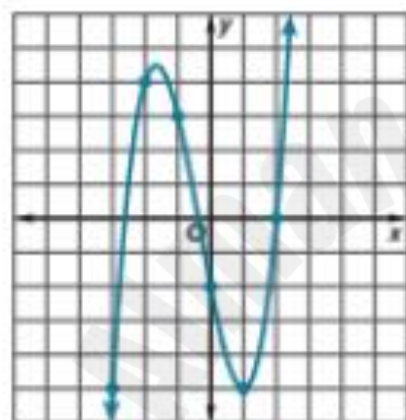


Example 2 Identify Extrema

Use a table to graph $f(x) = x^3 + x^2 - 5x - 2$. Estimate the x -coordinates at which the relative maxima and relative minima occur.

Step 1 Make a table of values and graph the function.

x	$f(x)$
-4	-30
-3	-5
-2	4
-1	3
0	-2
1	-5
2	0
3	19



Step 2 Estimate the locations of the extrema.

The value of $f(x)$ at $x = -2$ is greater than the surrounding points indicating a maximum *near* $x = -2$.

The value of $f(x)$ at $x = 1$ is less than the surrounding points indicating a minimum *near* $x = 1$.

You can use a graphing calculator to find the extrema of a function and confirm your estimates.

Mixed Exercises

Simplify.

30. $5xy(2x - y) + 6y^2(x^2 + 6)$

31. $3ab(4a - 5b) + 4b^2(2a^2 + 1)$

32. $\frac{1}{4}g^2(8g + 12h - 16gh^2)$

33. $\frac{1}{3}n^3(6n - 9p + 18np^4)$

34. $(g^3 - h)(g^3 + h)$

35. $(n^2 - 7)(2n^3 + 4)$

36. $(2x - 2y)^3$

37. $(4n - 5)^3$

38. $(3z - 2)^3$

39. $\frac{1}{4}(16x - 12y) + \frac{1}{3}(9x + 3y)$

Examples 4 and 5

Simplify using synthetic division.

11. $(3v^2 - 7v - 10)(v - 4)^{-1}$

12. $(3t^4 + 4t^3 - 32t^2 - 5t - 20)(t + 4)^{-1}$

13. $\frac{y^3 + 6}{y + 2}$

14. $\frac{2x^3 - x^2 - 18x + 32}{2x - 6}$

15. $(4p^3 - p^2 + 2p) \div (3p - 1)$

16. $(3c^4 + 6c^3 - 2c + 4)(c + 2)^{-1}$

Polynomial Equations

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Example 3

Given a polynomial and one of its factors, find the remaining factors of the polynomial.

23. $x^3 - 3x + 2; x + 2$

24. $x^4 + 2x^3 - 8x - 16; x + 2$

25. $x^3 - x^2 - 10x - 8; x + 2$

26. $x^3 - x^2 - 5x - 3; x - 3$

27. $2x^3 + 17x^2 + 23x - 42; x - 1$

28. $2x^3 + 7x^2 - 53x - 28; x - 4$

29. $x^4 + 2x^3 + 2x^2 - 2x - 3; x - 1$

30. $x^3 + 2x^2 - x - 2; x + 2$

Practice

 Go Online You can complete your homework online.

Examples 1-3

Factor completely. If the polynomial is not factorable, write *prime*.

1. $8c^3 - 27d^3$

2. $64x^4 + xy^3$

3. $a^8 - a^2b^6$

4. $x^6y^3 + y^9$

5. $18x^6 + 5y^6$

6. $w^3 - 2y^3$

7. $gx^2 - 3hx^2 - 6fy^2 - gy^2 + 6fx^2 + 3hy^2$

8. $12ax^2 - 20cy^2 - 18bx^2 - 10ay^2 + 15by^2 + 24cx^2$

9. $a^3x^2 - 16a^3x + 64a^3 - b^3x^2 + 16b^3x - 64b^3$

10. $8x^5 - 25y^3 + 80x^4 - x^2y^3 + 200x^3 - 10xy^3$

16	Graph quadratic functions	Exercises (27-32)	P11
17	Solve quadratic equations by using the Quadratic Formula	Exercises(8-23)	P47
18	Solve quadratic equations by factoring	Exercises (31-34)	P107
19	Use Pascal's Triangle to write binomial expansions	Exercises (1-12)	P111
20	Factorize polynomials	Example2	P120

Mixed Exercises

Complete parts a-c for each quadratic function.

- Find the y -intercept, the equation of the axis of symmetry, and the x -coordinate of the vertex.
- Make a table of values that includes the vertex.
- Use this information to graph the function.

27. $f(x) = 2x^2 - 6x - 9$

28. $f(x) = -3x^2 - 9x + 2$

29. $f(x) = -4x^2 + 5x$

30. $f(x) = 2x^2 + 11x$

31. $f(x) = 0.25x^2 + 3x + 4$

32. $f(x) = -0.75x^2 + 4x + 6$

Examples 2 and 3

Solve each equation by using the Quadratic Formula.

8. $x^2 + 2x - 35 = 0$

9. $4x^2 + 19x - 5 = 0$

10. $2x^2 - x - 15 = 0$

11. $3x^2 + 5x = 2$

12. $x^2 + x - 8 = 0$

13. $8x^2 + 5x - 1 = 0$

14. $x^2 - x - 5 = 0$

15. $16x^2 - 24x - 25 = 0$

16. $x^2 - 6x + 21 = 0$

17. $x^2 + 25 = 0$

18. $3x^2 + 36 = 0$

19. $8x^2 - 4x + 1 = 0$

20. $2x^2 + 2x + 3 = 0$

21. $x^2 - 14x + 53 = 0$

22. $4x^2 + 2x + 9 = 0$

23. $3x^2 - 6x + 11 = 0$

Polynomials and Polynomial Functions

32. **REASONING** Rewrite $\frac{6x^4 + 2x^3 - 16x^2 + 24x + 32}{2x + 4}$ as $q(x) + \frac{r(x)}{d(x)}$ using long division.

What does the remainder indicate in this problem?

33. **CONSTRUCT ARGUMENTS** Determine whether you have enough information to fill in the missing pieces of the long division exercise shown. If so, copy and complete the long division. Justify your response.

$$\begin{array}{r} 3x - \square \\ \square \overline{) 9x^2 + \square} \\ \underline{9x^2 + 3x} \\ -3x + 5 \end{array}$$

34. **REGULARITY** Rewrite $\frac{2x^5 - 7x^4 - 15x^3 + 2x^2 + 3x + 6}{2x + 3}$ as $q(x) + \frac{r(x)}{g(x)}$ using long division.

- Identify $q(x)$, $r(x)$, and $g(x)$.
- How can you check your work using the expressions of $q(x)$, $g(x)$, and $r(x)$?

Use Pascal's triangle to expand each binomial.

1. $(x - y)^3$

2. $(a + b)^4$

3. $(g - h)^4$

4. $(m + 1)^4$

5. $(y - z)^6$

6. $(d + 2)^8$

Example 2

7. **BAND** A school band went to 4 competitions during the year and received a superior rating 2 times. If the band is as likely to receive a superior rating as to not receive a superior rating, find the probability of this outcome by expanding $(s + n)^4$. Round to the nearest percent if necessary.

8. **BASKETBALL** Oliver shot 8 free throws at practice, making 6 free throws and missing 2 free throws. If Oliver is equally likely to make a free throw as he is to miss a free throw, find the probability of this outcome by expanding $(m + n)^8$. Round to the nearest percent if necessary.

Example 3

Expand each binomial.

9. $(3x + 4y)^5$

10. $(2c - 2d)^7$

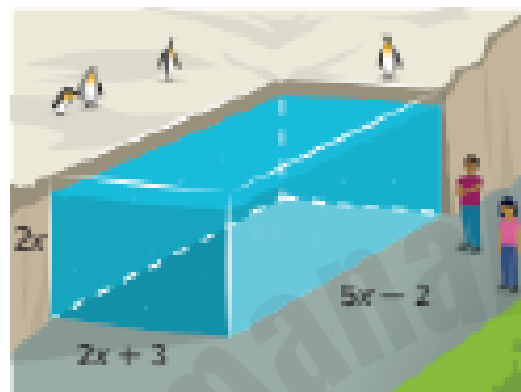
11. $(8h - 3j)^4$

12. $(4a + 3b)^6$

Polynomials and Polynomial Functions

Example 2 Solve a Polynomial Equation by Using a System

ANIMALS For an exhibit with six or fewer Emperor penguins, the pool must have a depth of at least 4 feet and a volume of at least 1620 gallons, or about 217 ft^3 , per bird. If a zoo has five Emperor penguins, what should the dimensions of the pool shown at the right be to meet the minimum requirements?



Part A Write a polynomial equation.

Use the formula for the volume of a rectangular prism, $V = \ell wh$, to write a polynomial equation that represents the volume of the pool. Let h represent the depth of the pool.

Since the minimum required volume for the pool is 217 ft^3 per penguin, or $217 \cdot 5 = 1085 \text{ ft}^3$, the equation that represents the volume of the pool is $(2x + 3)(5x - 2)2x = 1085$. Simplify the equation.

$$(2x + 3)(5x - 2)2x = 1085$$

Volume of pool

$$[2x(5x) + 2x(-2) + 3(5x) + 3(-2)]2x = 1085$$

FOIL

$$(10x^2 - 4x + 15x - 6)2x = 1085$$

Simplify.

$$(10x^2 + 11x - 6)2x = 1085$$

Combine like terms.

$$20x^3 + 22x^2 - 12x = 1085$$

Distributive Property

Module 3

Polynomial Equations

Part B Write and solve a system of equations.

Set each side equal to y to create a system of equations.

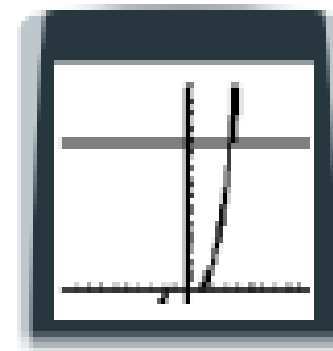
$$y = 20x^3 + 22x^2 - 12x \quad \text{First equation}$$

$$y = 1085 \quad \text{Second equation}$$

Enter the equations in the $Y =$ list and graph.

Use the **intersect** feature on the **CALC** menu to find the coordinates of the point of intersection.

The real solution is the x -coordinate of the intersection, which is 3.5.



Part C Find the dimensions.

Substitute 3.5 feet for x in the length, width, and depth of the pool.

$$\text{Length: } 2x + 3 = 10 \text{ ft}$$

$$\text{Width: } 5x - 2 = 15.5 \text{ ft}$$

$$\text{Depth: } 2x = 7 \text{ ft}$$