تم تحميل هذا الملف من موقع المناهج الإماراتية	
	

الملف الخطة الأسبوعية للأسبوع الخامس الحلقة الثانية في مدرسة أبو أيوب الأنصاري
موقع المناهج ⇦ المناهج الإماراتية ⇦ ملفات مدرسية ⇦ المدارس ⇦ الفصل الأول

روابط مواقع التواصل الاجتماعي بحسب ملفات مدرسية			
			
روابط مواد ملفات مدرسية على تلغرام			
التربية الاسلامية	اللغة العربية	اللغة الانجليزية	الرياضيات

المزيد من الملفات بحسب ملفات مدرسية والمادة المدارس في الفصل الأول	
1	توجيهات بدء الدراسة للعام الدراسي الجديد
2	امتحانات منتصف الفصل الأول للصفين الحادي عشر والثاني عشر في مدرسة الشعلة الخاصة
3	امتحانات منتصف الفصل الأول للصفين التاسع والعاشر في مدرسة الشعلة الخاصة
4	امتحانات منتصف الفصل الأول للصفوف الخامس حتى الثامن في مدرسة الشعلة الخاصة
5	امتحانات منتصف الفصل الأول للصفوف الأول حتى الرابع في مدرسة الشعلة الخاصة

1	Graph and analyze polynomial functions	23 to 31	81

Mixed Exercises

Describe the end behavior, state the degree and leading coefficient of each polynomial. If the function is not a polynomial, explain why.

23. $f(x) = -5x^4 + 3x^2$

24. $g(x) = 2x^5 + 6x^4$

25. $g(x) = 8x^4 + 5x^5$

26. $h(x) = 9x^6 - 5x^7 + 3x^2$

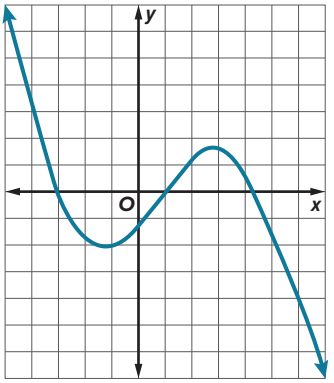
27. $f(x) = -6x^6 - 4x^5 + 13x^{-2}$

28. $f(x) = (5 - 2x)(4 + 3x)$

29. $h(x) = (x + 5)(3x - 4)$

30. $g(x) = 3x^7 - 4x^4 + \frac{3}{x}$

31. REASONING Describe the end behavior, and the possible degree and sign of the leading coefficient of the graph shown.



2	Graph and analyze power functions	1 to 6	79

rk online.

Describe the end behavior of each function using the leading coefficient and degree, and state the domain and range.

1. $f(x) = 3x^4$

2. $f(x) = -2x^3$

3. $f(x) = -\frac{1}{2}x^5$

4. $f(x) = \frac{3}{4}x^6$

Example 2

5. **USE A MODEL** The shape of a parabolic reflector inside a flashlight can be modeled by the function $f(x) = \frac{4}{3}x^2$. Graph the function $f(x)$, and state the domain and range.

6. **MACHINE EFFICIENCY** A company uses the function $f(x) = x^3 + 3x^2 - 18x - 40$ to model the change in efficiency of a machine based on its position x. Graph the function and state the domain and range.

11	Approximate zeros by graphing polynomial functions	1 to 6	89

Example 1

Determine the consecutive integer values of *x* between which each real zero of each function is located by using a table. Then sketch the graph.

1. $f(x) = x^2 + 3x - 1$

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

3. $f(x) = x^3 + 4x^2 - 5x + 5$

4. $f(x) = -x^4 - x^3 + 4$

Example 2

Use a table to graph each function. Then estimate the *x*-coordinates at which relative maxima and relative minima occur.

5. $f(x) = -2x^3 + 12x^2 - 8x$

6. $f(x) = 2x^3 - 4x^2 - 3x + 4$

3	Find extrema of polynomial functions	16 to 20	91

Graph each function by using a table of values. Then, estimate the *x*-coordinates at which each zero and relative extrema occur, and state the domain and range.

16. $f(x) = x^3 - 3x + 1$

17. $f(x) = 2x^3 + 9x^2 + 12x + 2$

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

19. $f(x) = x^4 - 2x^2 - 2$

20. Determine the key features for $y = \begin{cases} x^2 & \text{if } x \leq -4 \\ 5 & \text{if } -4 < x \leq 0. \\ x^3 & \text{if } x > 0 \end{cases}$

12	Multiply polynomials	13 to 26	97

Examples 4, 5 and 6

Multiply.

13. $3p(np - z)$

14. $4x(2x^2 + y)$

15. $-5(2c^2 - d^2)$

16. $x^2(2x + 9)$

17. $(a - 5)^2$

18. $(2x - 3)(3x - 5)$

19. $(x - y)(x^2 + 2xy + y^2)$

20. $(a + b)(a^3 - 3ab - b^2)$

21. $(x - y)(x + y)(2x + y)$

22. $(a + b)(2a + 3b)(2x - y)$

23. $(r - 2t)(r + 2t)$

24. $(3y + 4)(2y - 3)$

25. $(x^3 - 3x^2 + 1)(2x^2 - x + 2)$

26. $(4x^5 + x^3 - 7x^2 + 2)(3x - 1)$

13	Add and subtract polynomials	5 to 12	97

Examples 2 and 3

Add or subtract.

5. $(6a^2 + 5a + 10) - (4a^2 + 6a + 12)$

6. $(7b^2 + 6b - 7) - (4b^2 - 2)$

7. $(g + 5) + (2g + 7)$

8. $(5d + 5) - (d + 1)$

9. $(x^2 - 3x - 3) + (2x^2 + 7x - 2)$

10. $(-2f^2 - 3f - 5) + (-2f^2 - 3f + 8)$

11. $(2x - 3) - (5x - 6)$

12. $(x^2 + 2x - 5) - (3x^2 - 4x + 7)$

21	Divide polynomials by using synthetic division	5 to 16	105

Examples 2 and 3

Simplify by using long division.

5. $(n^2 + 7n + 10) \div (n + 5)$

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

7. $(2t^2 + 13t + 15) \div (t + 6)$

8. $(6y^2 + y - 2)(2y - 1)^{-1}$

9. $(4g^2 - 9) \div (2g + 3)$

10. $(2x^2 - 5x - 4) \div (x - 3)$

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

22	Solve polynomial equations by factoring	1 to 15	127

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

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

Example 4

Solve each equation.

11. $a^3 - 9a^2 + 14a = 0$

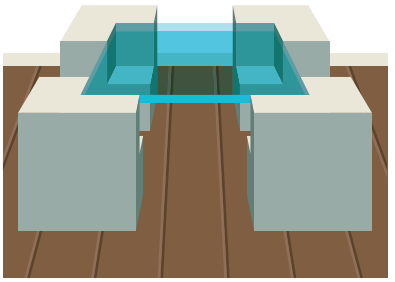
12. $x^3 = 3x^2$

13. $t^4 - 3t^3 - 40t^2 = 0$

14. $b^3 - 8b^2 + 16b = 0$

Example 5

15. FURNITURE A modern table is constructed with four legs made of concrete cubes with cube-shaped notches.



a. Define one or more variables and write an expression that represents the volume of one table leg.

b. Marisol determined that she will use 12,636 cubic inches of concrete to construct the four table legs. If the sides of the notches are 40% of the sides of the legs, how long are the sides of the legs?

4	Solve polynomial equations by writing them in quadratic form and factoring	16 to 27	128

Write each expression in quadratic form, if possible.

16. $x^4 + 12x^2 - 8$

17. $-15x^4 + 18x^2 - 4$

18. $8x^6 + 6x^3 + 7$

19. $5x^6 - 2x^2 + 8$

20. $9x^8 - 21x^4 + 12$

21. $16x^{10} + 2x^5 + 6$

Example 7

Solve each equation.

22. $x^4 + 6x^2 + 5 = 0$

23. $x^4 - 3x^2 - 10 = 0$

24. $4x^4 - 14x^2 + 12 = 0$

25. $9x^4 - 27x^2 + 20 = 0$

26. $4x^4 - 5x^2 - 6 = 0$

27. $24x^4 + 14x^2 - 3 = 0$

5	Evaluate functions by using synthetic substitution	9 to 20	139

Use synthetic substitution to find $f(2)$ and $f(-1)$ for each function.

9. $f(x) = x^2 + 6x + 5$

10. $f(x) = x^2 - x + 1$

11. $f(x) = x^2 - 2x - 2$

12. $f(x) = x^3 + 2x^2 + 5$

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

14. $f(x) = x^3 + 6x^2 + x - 4$

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

16. $f(x) = x^3 - 5x^2 - x + 6$

17. $f(x) = x^4 + 2x^2 - 9$

18. $f(x) = x^4 - 3x^3 + 2x^2 - 2x + 6$

19. $f(x) = x^5 - 7x^3 - 4x + 10$

20. $f(x) = x^6 - 2x^5 + x^4 + x^3 - 9x^2 - 20$

14	Use the Factor Theorem to determine factors of polynomials	23 to 30	139

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

Part 1			
6	Use the Fundamental Theorem of Algebra to determine the numbers and types of roots of polynomial equations	1 to 28	149

Example 1

Solve each equation. State the number and type of roots.

1. $5x + 12 = 0$

2. $x^2 - 4x + 40 = 0$

3. $x^5 + 4x^3 = 0$

4. $x^4 - 625 = 0$

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

6. $x^5 - 81x = 0$

7. $2x^2 + x - 6 = 0$

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

9. $x^3 + 1 = 0$

10. $2x^2 - 5x + 14 = 0$

11. $-3x^2 - 5x + 8 = 0$

12. $8x^3 - 27 = 0$

13. $16x^4 - 625 = 0$

14. $x^3 - 6x^2 + 7x = 0$

15. $x^5 - 8x^3 + 16x = 0$

16. $x^5 + 2x^3 + x = 0$

Example 2

State the possible number of positive real zeros, negative real zeros, and imaginary zeros of each function.

17. $g(x) = 3x^3 - 4x^2 - 17x + 6$

18. $h(x) = 4x^3 - 12x^2 - x + 3$

19. $f(x) = x^3 - 8x^2 + 2x - 4$

20. $p(x) = x^3 - x^2 + 4x - 6$

21. $q(x) = x^4 + 7x^2 + 3x - 9$

22. $f(x) = x^4 - x^3 - 5x^2 + 6x + 1$

23. $f(x) = x^4 - 5x^3 + 2x^2 + 5x + 7$

24. $f(x) = 2x^3 - 7x^2 - 2x + 12$

25. $f(x) = -3x^5 + 5x^4 + 4x^2 - 8$

26. $f(x) = x^4 - 2x^2 - 5x + 19$

27. $f(x) = 4x^6 - 5x^4 - x^2 + 24$

28. $f(x) = -x^5 + 14x^3 + 18x - 36$

15	Determine the numbers and types of roots of polynomial equations, find zeros, and use zeros to graph polynomial functions	46 to 55	151

Mixed Exercises

Write a polynomial function of least degree with integral coefficients that has the given zeros.

46. 5, −2, −1

47. −4, −3, 5

48. −1, −1, $2i$

49. −3, 1, $-3i$

50. 0, −5, $3 + i$

51. −2, −3, $4 - 3i$

Sketch the graph of each function using its zeros.

52. $f(x) = x^3 - 5x^2 - 2x + 24$

53. $f(x) = 4x^3 + 2x^2 - 4x - 2$

54. $f(x) = x^4 - 6x^3 + 7x^2 + 6x - 8$

55. $f(x) = x^4 - 6x^3 + 9x^2 + 4x - 12$

your reasoning.

7	Find sums, differences, products, and quotients of functions	1 to 6	163

Examples 1 and 2

Find $(f + g)(x)$, $(f - g)(x)$, $(f \cdot g)(x)$, and $\left(\frac{f}{g}\right)(x)$ for each $f(x)$ and $g(x)$.

1. $f(x) = 2x$

$g(x) = -4x + 5$

2. $f(x) = x - 1$

$g(x) = 5x - 2$

3. $f(x) = x - 2$

$g(x) = 2x - 7$

4. $f(x) = x^2$

$g(x) = x - 5$

5. $f(x) = -x^2 + 6$

$g(x) = 2x^2 + 3x - 5$

6. $f(x) = 3x^2 - 4$

$g(x) = x^2 - 8x + 4$

Example 4

For each pair of functions, find $f \circ g$ and $g \circ f$, if they exist. State the domain and range for each.

9. $f = \{(-8, -4), (0, 4), (2, 6), (-6, -2)\}$
$g = \{(4, -4), (-2, -1), (-4, 0), (6, -5)\}$

10. $f = \{(-7, 0), (4, 5), (8, 12), (-3, 6)\}$
$g = \{(6, 8), (-12, -5), (0, 5), (5, 1)\}$

11. $f = \{(5, 13), (-4, -2), (-8, -11), (3, 1)\}$
$g = \{(-8, 2), (-4, 1), (3, -3), (5, 7)\}$

12. $f = \{(-4, -14), (0, -6), (-6, -18), (2, -2)\}$
$g = \{(-6, 1), (-18, 13), (-14, 9), (-2, -3)\}$

Example 5

Find $[f \circ g](x)$ and $[g \circ f](x)$. State the domain and range for each.

13. $f(x) = 2x$
$g(x) = x + 5$

14. $f(x) = -3x$
$g(x) = -x + 8$

15. $f(x) = x^2 + 6x - 2$
$g(x) = x - 6$

16. $f(x) = 2x^2 - x + 1$
$g(x) = 4x + 3$

16	Find compositions of functions	9 to 16	164

8	Find inverses of relations	1 to 14	171

Example 1

For each polygon, find the inverse of the relation. Then, graph both the original relation and its inverse.

1. $\triangle MNP$ with vertices at $\{(-8, 6), (6, -2), (4, -6)\}$

2. $\triangle XYZ$ with vertices at $\{(7, 7), (4, 9), (3, -7)\}$

3. trapezoid $QRST$ with vertices at $\{(8, -1), (-8, -1), (-2, -8), (2, -8)\}$

4. quadrilateral $FGHJ$ with vertices at $\{(4, 3), (-4, -4), (-3, -5), (5, 2)\}$

Examples 2 and 3

Find the inverse of each function. Then graph the function and its inverse. If necessary, restrict the domain of the inverse so that it is a function.

5. $f(x) = x + 2$

6. $g(x) = 5x$

7. $f(x) = -2x + 1$

8. $h(x) = \frac{x - 4}{3}$

9. $f(x) = -\frac{5}{3}x - 8$

10. $g(x) = x + 4$

11. $f(x) = 4x$

12. $f(x) = -8x + 9$

13. $f(x) = 5x^2$

14. $h(x) = x^2 + 4$

17	Verify that two relations are inverses by using compositions	31 to 40	173

Determine whether each pair of functions are inverse functions. Write *yes* or *no*.

31. $f(x) = 4x^2$
$g(x) = \frac{1}{2}\sqrt{x}$

32. $f(x) = \frac{1}{3}x^2 + 1$
$g(x) = \sqrt{3x - 3}$

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

34. $f(x) = \frac{2}{3}x^3$
$g(x) = \sqrt[3]{\frac{2}{3}x}$

35. $f(x) = (x + 6)^2$
$g(x) = \sqrt{x} - 6$

36. $f(x) = 2\sqrt{x - 5}$
$g(x) = \frac{1}{4}x^2 - 5$

Restrict the domain of $f(x)$ so that its inverse is also a function. State the restricted domain of $f(x)$ and the domain of $f^{-1}(x)$.

37. $f(x) = x^2 + 5$

38. $f(x) = 3x^2$

39. $f(x) = \sqrt{x + 6}$

40. $f(x) = \sqrt{x + 3}$

9	Simplify expressions involving radicals and rational exponents	1 to 12	179

Examples 1 and 2

Simplify.

1. $\pm\sqrt{121x^4y^{16}}$

2. $\pm\sqrt{225a^{16}b^{36}}$

3. $\pm\sqrt{49x^4}$

4. $-\sqrt{16c^4d^2}$

5. $-\sqrt{81a^{16}b^{20}c^{12}}$

6. $-\sqrt{400x^{32}y^{40}}$

7. $\sqrt[4]{16(x-3)^{12}}$

8. $\sqrt[8]{x^{16}y^8}$

9. $\sqrt[4]{81(x-4)^4}$

10. $\sqrt[6]{x^{18}}$

11. $\sqrt[4]{a^{12}}$

12. $\sqrt[3]{a^{12}}$

10	Simplify expressions in exponential or radical form	13 to 26	179

Examples 3

Write each expression in radical form, or write each radical in exponential form.

13. $8^{\frac{1}{5}}$

14. $4^{\frac{2}{7}}$

15. $(x^3)^{\frac{3}{2}}$

16. $\sqrt{17}$

17. $\sqrt[3]{5xy^2}$

18. $\sqrt[4]{625x^2}$

Examples 4

19. ORBITING The distance in millions of miles a planet is from the Sun in terms of t, the number of Earth days it takes for the planet to orbit the Sun, can be modeled by the expression $\sqrt[3]{6t^2}$. Write the expression in exponential form.

20. DEPRECIATION The depreciation rate is calculated by the expression $1-\left(\frac{T}{P}\right)^{\frac{1}{n}}$, where n is the age of the item in years, T is the resale price in dollars, and P is the original price in dollars. Write the expression in radical form for an 8 year old car that was originally purchased for $52,425.

Example 5

Evaluate each expression.

21. $27^{\frac{1}{3}}$

22. $256^{\frac{1}{4}}$

23. $16^{-\frac{3}{2}}$

24. $81^{-\frac{1}{4}}$

25. $1024^{\frac{3}{5}}$

26. $16^{-\frac{5}{4}}$

18	Graph and analyze square root functions	14 to 19	190

Graph each inequality.

14. $y < \sqrt{x - 5}$

15. $y > \sqrt{x + 6}$

16. $y \geq -4\sqrt{x + 3}$

17. $y \leq -2\sqrt{x - 6}$

18. $y > 2\sqrt{x + 7} - 5$

19. $y \geq 4\sqrt{x - 2} - 12$

23	Add, subtract, and multiply radicals	11 to 24	199

Example 3

Simplify.

11. $\sqrt{2} + \sqrt{8} + \sqrt{50}$

12. $\sqrt{12} - 2\sqrt{3} + \sqrt{108}$

13. $8\sqrt{5} - \sqrt{45} - \sqrt{80}$

14. $2\sqrt{48} - \sqrt{75} - \sqrt{12}$

15. $\sqrt{28x} - \sqrt{14} + \sqrt{63x}$

16. $\sqrt{135} + 5\sqrt{10d} - 3\sqrt{60}$

Example 4

Simplify.

17. $3\sqrt{5y} \cdot 8\sqrt{10yz}$

18. $2\sqrt{32a^3b^5} \cdot \sqrt{8a^7b^2}$

19. $6\sqrt{3ab} \cdot 4\sqrt{24ab^3}$

20. $5\sqrt{x^8y^3} \cdot 5\sqrt{2x^5y^4}$

21. $5\sqrt{2x} \cdot 3\sqrt{7x^2y^3}$

22. $3\sqrt{a^5b^7} \cdot 2\sqrt{5a^7b^3}$

Example 5

23. TRAMPOLINE There are two trampoline runways at a gymnastics practice facility. Both runways are $\sqrt{3}$ meters wide. One is $6\sqrt{3}$ meters long and the other is $5\sqrt{2}$ meters long. What is the total area of the trampoline runways?

24. DISTANCE Jayla walks 5 blocks north, then 8 blocks east to get to the library. Each block is $5\sqrt{10}$ yards long. If Jayla could walk in a straight line to the library instead, how far would the walk be, in yards?

19	Divide and simplify radical expressions by rationalizing the denominator	29 to 38	200

Examples 6 and 7

Simplify.

29. $\frac{\sqrt{5a^5}}{\sqrt{b^{13}}}$

30. $\frac{\sqrt{7x}}{\sqrt{10x^3}}$

31. $\frac{3\sqrt[3]{6x^2}}{3\sqrt[3]{5y}}$

32. $\sqrt[4]{\frac{7x^3}{4b^2}}$

33. $\frac{6}{\sqrt{3}-\sqrt{2}}$

34. $\frac{\sqrt{2}}{\sqrt{5}-\sqrt{3}}$

35. $\frac{9-2\sqrt{3}}{\sqrt{3}+6}$

36. $\frac{2\sqrt{2}+2\sqrt{5}}{\sqrt{5}+\sqrt{2}}$

37. $\frac{3\sqrt{7}}{\sqrt{5}-1}$

38. $\frac{7x}{3-\sqrt{2}}$

20	Solve radical equations in one variable and identify extraneous solutions	1 to 20	207

Example 1

Solve each equation.

1. $5\sqrt{j} = 1$

2. $\sqrt{b - 5} = 4$

3. $\sqrt{3n + 1} = 5$

4. $2 + \sqrt{3p + 7} = 6$

5. $\sqrt{k - 4} - 1 = 5$

6. $5 = \sqrt{2g - 7}$

Example 2

Solve each equation.

7. $\sqrt[3]{3r - 6} = 3$

8. $(2d + 3)^{\frac{1}{3}} = 2$

9. $(t - 3)^{\frac{1}{3}} = 2$

10. $4 - (1 - 7u)^{\frac{1}{3}} = 0$

11. $\sqrt[3]{2v - 7} = -2$

12. $4(5n - 1)^{\frac{1}{3}} - 1 = 0$

Examples 3 and 4

Solve each equation. Identify any extraneous solutions.

13. $\sqrt{x - 15} = 3 - \sqrt{x}$

14. $(5q + 1)^{\frac{1}{4}} + 7 = 5$

15. $(3x + 7)^{\frac{1}{4}} - 3 = 1$

16. $(3y - 2)^{\frac{1}{5}} + 5 = 6$

17. $(4z - 1)^{\frac{1}{5}} - 1 = 2$

18. $\sqrt{x - 10} = 1 - \sqrt{x}$

19. $\sqrt[6]{y + 2} + 9 = 14$

20. $(2x - 1)^{\frac{1}{4}} - 2 = 1$