Polynomial Functions and Models

Higher-degree polynomial behavior, end behavior, and polynomial models.

Name _____ Date _____

32 main · 2-up grid · 12 pages · visible side quests

Completion Reward

Shown here as a small pack artifact, not a preview destination.

1. What is the degree of 4x^5 - 3x^2 + 7?

A. 4
B. 2
C. 7
D. 5

1.1. What is the degree of 7x^5 - 2x + 9?

A. 1
B. 2
C. 5
D. 9

1.2. An expression with exactly one term is called a:

A. binomial
B. trinomial
C. monomial
D. polynomial zero

1.3. An expression with exactly two terms is called a:

A. monomial
B. binomial
C. trinomial
D. factor

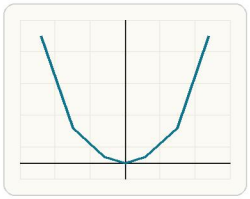
1.4. Which expression is a trinomial?

A. x^2 + 3x + 2
B. 4x
C. x - 7
D. 5

1.5. What is the degree of the term 6x^3?

A. 3
B. 6
C. 9
D. 1

2. How does an even-degree polynomial with positive leading coefficient behave at the ends?



End behavior is controlled by the highest-power term, so a positive even-degree polynomial goes up left and right.

A. Down on both ends
B. Up left and down right
C. Down left and up right
D. Up on both ends

2.1. What is the degree of 7x^5 - 2x + 9?

A. 1
B. 2
C. 5
D. 9

2.2. An expression with exactly one term is called a:

A. binomial
B. trinomial
C. monomial
D. polynomial zero

2.3. An expression with exactly two terms is called a:

A. monomial
B. binomial
C. trinomial
D. factor

2.4. Which expression is a trinomial?

A. x^2 + 3x + 2
B. 4x
C. x - 7
D. 5

2.5. What is the degree of the term 6x^3?

A. 3
B. 6
C. 9
D. 1

3. How does an odd-degree polynomial with negative leading coefficient behave?

For an odd degree with negative leading coefficient, the graph comes down as x increases and rises as x decreases.

A. Up left and down right
B. Down on both ends
C. Up on both ends
D. Down left and up right

3.1. What is the degree of 7x^5 - 2x + 9?

A. 1
B. 2
C. 5
D. 9

3.2. An expression with exactly one term is called a:

A. binomial
B. trinomial
C. monomial
D. polynomial zero

3.3. An expression with exactly two terms is called a:

A. monomial
B. binomial
C. trinomial
D. factor

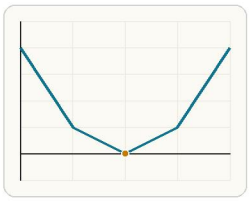
3.4. Which expression is a trinomial?

A. x^2 + 3x + 2
B. 4x
C. x - 7
D. 5

3.5. What is the degree of the term 6x^3?

A. 3
B. 6
C. 9
D. 1

4. If a factor (x - 2)^2 appears, what does that suggest about x = 2?



A factor like (x - 2)^2 means x = 2 is a zero of multiplicity 2.

A. It is a repeated zero.
B. It is never a zero.
C. It must be a y-intercept.
D. It forces odd degree.

4.1. Which factors 8x + 12?

A. 4(2x + 3)
B. 2(4x + 12)
C. 8(x + 12)
D. 4(x + 3)

4.2. Which factors x^2 - 25?

A. (x - 5)(x + 5)
B. (x - 25)(x + 1)
C. (x - 5)^2
D. (x + 25)(x - 1)

4.3. Which factors x^2 + 7x + 12?

A. (x + 3)(x + 4)
B. (x + 2)(x + 6)
C. (x - 3)(x - 4)
D. (x + 12)(x + 1)

4.4. Before factoring 6x^2 + 9x, what should you check first?

A. the y-intercept
B. the greatest common factor
C. the degree parity
D. the zeros

4.5. If (x - 4)(x + 1) = 0, one possible x-value is:

A. 5
B. 4
C. 3
D. -4

5. For a large positive x, what mostly controls the value of 2x^5 - x + 7?

A. The leading term 2x^5
B. The constant 7
C. The term -x only
D. The sign of x only

5.1. A polynomial of even degree with positive leading coefficient has ends that:

A. both rise
B. both fall
C. go opposite directions
D. touch the x-axis only

5.2. A polynomial of odd degree with positive leading coefficient has ends that:

A. both rise
B. both fall
C. left down and right up
D. left up and right down

5.3. If x = -3 is a zero, which factor belongs?

A. x - 3
B. x + 3
C. 3x - 1
D. x^2 + 3

5.4. To test whether 2 is a zero of f(x), you should compute:

A. f(0)
B. f(1)
C. f(2)
D. 2f(x)

5.5. The Fundamental Theorem of Algebra guarantees that a degree-4 polynomial has:

A. exactly 4 complex zeros counting multiplicity
B. at most 2 zeros
C. only real zeros
D. no repeated zeros

6. In x^4 + 2x + 1, what determines the degree?

A. The number of terms
B. The coefficient of x
C. The largest exponent
D. The constant term

6.1. What is the degree of 7x^5 - 2x + 9?

A. 1
B. 2
C. 5
D. 9

6.2. An expression with exactly one term is called a:

A. binomial
B. trinomial
C. monomial
D. polynomial zero

6.3. An expression with exactly two terms is called a:

A. monomial
B. binomial
C. trinomial
D. factor

6.4. Which expression is a trinomial?

A. x^2 + 3x + 2
B. 4x
C. x - 7
D. 5

6.5. What is the degree of the term 6x^3?

A. 3
B. 6
C. 9
D. 1

7. Which polynomial has degree 3 and positive leading coefficient?

Use the highest power and its sign to judge which polynomial matches the required degree and leading-coefficient behavior.

A. -x^3 + 4x
B. x^2 - 5
C. -3x^4 + 2
D. 2x^3 - x + 1

7.1. What is the degree of 7x^5 - 2x + 9?

A. 1
B. 2
C. 5
D. 9

7.2. An expression with exactly one term is called a:

A. binomial
B. trinomial
C. monomial
D. polynomial zero

7.3. An expression with exactly two terms is called a:

A. monomial
B. binomial
C. trinomial
D. factor

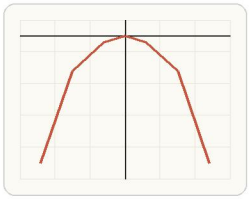
7.4. Which expression is a trinomial?

A. x^2 + 3x + 2
B. 4x
C. x - 7
D. 5

7.5. What is the degree of the term 6x^3?

A. 3
B. 6
C. 9
D. 1

8. Which polynomial has both ends going downward?



An even-degree polynomial with negative leading coefficient falls on both ends.

A. x^4 - 3
B. 2x^3 + 1
C. -x^4 + x
D. x^3 - 4x

8.1. A polynomial of even degree with positive leading coefficient has ends that:

A. both rise
B. both fall
C. go opposite directions
D. touch the x-axis only

8.2. A polynomial of odd degree with positive leading coefficient has ends that:

A. both rise
B. both fall
C. left down and right up
D. left up and right down

8.3. If x = -3 is a zero, which factor belongs?

A. x - 3
B. x + 3
C. 3x - 1
D. x^2 + 3

8.4. To test whether 2 is a zero of f(x), you should compute:

A. f(0)
B. f(1)
C. f(2)
D. 2f(x)

8.5. The Fundamental Theorem of Algebra guarantees that a degree-4 polynomial has:

A. exactly 4 complex zeros counting multiplicity
B. at most 2 zeros
C. only real zeros
D. no repeated zeros

9. Which factor form has zeros 1, 1, and -2?

A. (x + 1)^2(x - 2)
B. (x - 1)^2(x + 2)
C. (x - 1)(x - 2)^2
D. (x + 1)(x + 2)^2

9.1. Which factors 8x + 12?

A. 4(2x + 3)
B. 2(4x + 12)
C. 8(x + 12)
D. 4(x + 3)

9.2. Which factors x^2 - 25?

A. (x - 5)(x + 5)
B. (x - 25)(x + 1)
C. (x - 5)^2
D. (x + 25)(x - 1)

9.3. Which factors x^2 + 7x + 12?

A. (x + 3)(x + 4)
B. (x + 2)(x + 6)
C. (x - 3)(x - 4)
D. (x + 12)(x + 1)

9.4. Before factoring 6x^2 + 9x, what should you check first?

A. the y-intercept
B. the greatest common factor
C. the degree parity
D. the zeros

9.5. If (x - 4)(x + 1) = 0, one possible x-value is:

A. 5
B. 4
C. 3
D. -4

10. What is the best first step when building a polynomial with zeros 1 and -4?

A. Add the zeros together first.
B. Square both zeros.
C. Write factors x - 1 and x + 4.
D. Start with y = mx + b.

10.1. A polynomial of even degree with positive leading coefficient has ends that:

A. both rise
B. both fall
C. go opposite directions
D. touch the x-axis only

10.2. A polynomial of odd degree with positive leading coefficient has ends that:

A. both rise
B. both fall
C. left down and right up
D. left up and right down

10.3. If x = -3 is a zero, which factor belongs?

A. x - 3
B. x + 3
C. 3x - 1
D. x^2 + 3

10.4. To test whether 2 is a zero of f(x), you should compute:

A. f(0)
B. f(1)
C. f(2)
D. 2f(x)

10.5. The Fundamental Theorem of Algebra guarantees that a degree-4 polynomial has:

A. exactly 4 complex zeros counting multiplicity
B. at most 2 zeros
C. only real zeros
D. no repeated zeros

11. A student says a zero at -3 gives factor x - 3. What is the mistake?

A. A zero at -3 gives x + 3 because x - (-3) = x + 3.
B. They should always square the factor.
C. The factor should be 3x.
D. Negative zeros do not make factors.

11.1. Which factors 8x + 12?

A. 4(2x + 3)
B. 2(4x + 12)
C. 8(x + 12)
D. 4(x + 3)

11.2. Which factors x^2 - 25?

A. (x - 5)(x + 5)
B. (x - 25)(x + 1)
C. (x - 5)^2
D. (x + 25)(x - 1)

11.3. Which factors x^2 + 7x + 12?

A. (x + 3)(x + 4)
B. (x + 2)(x + 6)
C. (x - 3)(x - 4)
D. (x + 12)(x + 1)

11.4. Before factoring 6x^2 + 9x, what should you check first?

A. the y-intercept
B. the greatest common factor
C. the degree parity
D. the zeros

11.5. If (x - 4)(x + 1) = 0, one possible x-value is:

A. 5
B. 4
C. 3
D. -4

12. Evaluate f(x) = x^3 - 2x when x = 3. Answer with a number.

12.1. What is (2x^2 + 3x) + (x^2 - x)?

A. 3x^2 + 2x
B. 2x^4 + 2x
C. x^2 + 4x
D. 3x^2 - 2x

12.2. What is 4x(x + 3)?

A. 4x^2 + 3
B. 4x^2 + 12x
C. 5x + 3
D. 4x^2 + 7x

12.3. What is (x + 2)(x + 5)?

A. x^2 + 7x + 10
B. x^2 + 10x + 7
C. 2x^2 + 7x + 10
D. x^2 + 3x + 10

12.4. If p(x) = x^2 - 3x + 1, what is p(2)?

A. -1
B. 1
C. 3
D. 5

12.5. An area model for (x + 2)(x + 4) helps you find:

A. a factor only
B. the expanded product
C. the slope
D. the degree only

13. Evaluate p(x) = 2x^3 + x^2 - 1 when x = 2. Answer with a number.

13.1. What is (2x^2 + 3x) + (x^2 - x)?

A. 3x^2 + 2x
B. 2x^4 + 2x
C. x^2 + 4x
D. 3x^2 - 2x

13.2. What is 4x(x + 3)?

A. 4x^2 + 3
B. 4x^2 + 12x
C. 5x + 3
D. 4x^2 + 7x

13.3. What is (x + 2)(x + 5)?

A. x^2 + 7x + 10
B. x^2 + 10x + 7
C. 2x^2 + 7x + 10
D. x^2 + 3x + 10

13.4. If p(x) = x^2 - 3x + 1, what is p(2)?

A. -1
B. 1
C. 3
D. 5

13.5. An area model for (x + 2)(x + 4) helps you find:

A. a factor only
B. the expanded product
C. the slope
D. the degree only

14. Evaluate q(x) = x^4 - 5 when x = -2. Answer with a number.

14.1. What is (2x^2 + 3x) + (x^2 - x)?

A. 3x^2 + 2x
B. 2x^4 + 2x
C. x^2 + 4x
D. 3x^2 - 2x

14.2. What is 4x(x + 3)?

A. 4x^2 + 3
B. 4x^2 + 12x
C. 5x + 3
D. 4x^2 + 7x

14.3. What is (x + 2)(x + 5)?

A. x^2 + 7x + 10
B. x^2 + 10x + 7
C. 2x^2 + 7x + 10
D. x^2 + 3x + 10

14.4. If p(x) = x^2 - 3x + 1, what is p(2)?

A. -1
B. 1
C. 3
D. 5

14.5. An area model for (x + 2)(x + 4) helps you find:

A. a factor only
B. the expanded product
C. the slope
D. the degree only

15. Evaluate r(x) = (x - 1)(x + 2)(x - 3) when x = 4. Answer with a number.

15.1. What is (2x^2 + 3x) + (x^2 - x)?

A. 3x^2 + 2x
B. 2x^4 + 2x
C. x^2 + 4x
D. 3x^2 - 2x

15.2. What is 4x(x + 3)?

A. 4x^2 + 3
B. 4x^2 + 12x
C. 5x + 3
D. 4x^2 + 7x

15.3. What is (x + 2)(x + 5)?

A. x^2 + 7x + 10
B. x^2 + 10x + 7
C. 2x^2 + 7x + 10
D. x^2 + 3x + 10

15.4. If p(x) = x^2 - 3x + 1, what is p(2)?

A. -1
B. 1
C. 3
D. 5

15.5. An area model for (x + 2)(x + 4) helps you find:

A. a factor only
B. the expanded product
C. the slope
D. the degree only

16. What is the leading term of 7 - 2x^3 + 5x^2? Answer with a number.

16.1. What is (2x^2 + 3x) + (x^2 - x)?

A. 3x^2 + 2x
B. 2x^4 + 2x
C. x^2 + 4x
D. 3x^2 - 2x

16.2. What is 4x(x + 3)?

A. 4x^2 + 3
B. 4x^2 + 12x
C. 5x + 3
D. 4x^2 + 7x

16.3. What is (x + 2)(x + 5)?

A. x^2 + 7x + 10
B. x^2 + 10x + 7
C. 2x^2 + 7x + 10
D. x^2 + 3x + 10

16.4. If p(x) = x^2 - 3x + 1, what is p(2)?

A. -1
B. 1
C. 3
D. 5

16.5. An area model for (x + 2)(x + 4) helps you find:

A. a factor only
B. the expanded product
C. the slope
D. the degree only

17. A degree-4 polynomial can have at most how many turning points? Answer with a number.

17.1. What is the degree of 7x^5 - 2x + 9?

A. 1
B. 2
C. 5
D. 9

17.2. An expression with exactly one term is called a:

A. binomial
B. trinomial
C. monomial
D. polynomial zero

17.3. An expression with exactly two terms is called a:

A. monomial
B. binomial
C. trinomial
D. factor

17.4. Which expression is a trinomial?

A. x^2 + 3x + 2
B. 4x
C. x - 7
D. 5

17.5. What is the degree of the term 6x^3?

A. 3
B. 6
C. 9
D. 1

18. A projectile model is h(t) = -t^2 + 6t. Find h(2). Answer with a number.

18.1. What is (2x^2 + 3x) + (x^2 - x)?

A. 3x^2 + 2x
B. 2x^4 + 2x
C. x^2 + 4x
D. 3x^2 - 2x

18.2. What is 4x(x + 3)?

A. 4x^2 + 3
B. 4x^2 + 12x
C. 5x + 3
D. 4x^2 + 7x

18.3. What is (x + 2)(x + 5)?

A. x^2 + 7x + 10
B. x^2 + 10x + 7
C. 2x^2 + 7x + 10
D. x^2 + 3x + 10

18.4. If p(x) = x^2 - 3x + 1, what is p(2)?

A. -1
B. 1
C. 3
D. 5

18.5. An area model for (x + 2)(x + 4) helps you find:

A. a factor only
B. the expanded product
C. the slope
D. the degree only

19. A cubic model is p(x) = x^3 - x. Find p(-2). Answer with a number.

19.1. What is (2x^2 + 3x) + (x^2 - x)?

A. 3x^2 + 2x
B. 2x^4 + 2x
C. x^2 + 4x
D. 3x^2 - 2x

19.2. What is 4x(x + 3)?

A. 4x^2 + 3
B. 4x^2 + 12x
C. 5x + 3
D. 4x^2 + 7x

19.3. What is (x + 2)(x + 5)?

A. x^2 + 7x + 10
B. x^2 + 10x + 7
C. 2x^2 + 7x + 10
D. x^2 + 3x + 10

19.4. If p(x) = x^2 - 3x + 1, what is p(2)?

A. -1
B. 1
C. 3
D. 5

19.5. An area model for (x + 2)(x + 4) helps you find:

A. a factor only
B. the expanded product
C. the slope
D. the degree only

20. Evaluate s(x) = x^4 - 2x^2 when x = 3. Answer with a number.

20.1. What is (2x^2 + 3x) + (x^2 - x)?

A. 3x^2 + 2x
B. 2x^4 + 2x
C. x^2 + 4x
D. 3x^2 - 2x

20.2. What is 4x(x + 3)?

A. 4x^2 + 3
B. 4x^2 + 12x
C. 5x + 3
D. 4x^2 + 7x

20.3. What is (x + 2)(x + 5)?

A. x^2 + 7x + 10
B. x^2 + 10x + 7
C. 2x^2 + 7x + 10
D. x^2 + 3x + 10

20.4. If p(x) = x^2 - 3x + 1, what is p(2)?

A. -1
B. 1
C. 3
D. 5

20.5. An area model for (x + 2)(x + 4) helps you find:

A. a factor only
B. the expanded product
C. the slope
D. the degree only

21. Evaluate m(x) = (x - 1)^2 at x = 5. Answer with a number.

21.1. What is (2x^2 + 3x) + (x^2 - x)?

A. 3x^2 + 2x
B. 2x^4 + 2x
C. x^2 + 4x
D. 3x^2 - 2x

21.2. What is 4x(x + 3)?

A. 4x^2 + 3
B. 4x^2 + 12x
C. 5x + 3
D. 4x^2 + 7x

21.3. What is (x + 2)(x + 5)?

A. x^2 + 7x + 10
B. x^2 + 10x + 7
C. 2x^2 + 7x + 10
D. x^2 + 3x + 10

21.4. If p(x) = x^2 - 3x + 1, what is p(2)?

A. -1
B. 1
C. 3
D. 5

21.5. An area model for (x + 2)(x + 4) helps you find:

A. a factor only
B. the expanded product
C. the slope
D. the degree only

22. Evaluate n(x) = x^4 + x when x = -2. Answer with a number.

22.1. What is (2x^2 + 3x) + (x^2 - x)?

A. 3x^2 + 2x
B. 2x^4 + 2x
C. x^2 + 4x
D. 3x^2 - 2x

22.2. What is 4x(x + 3)?

A. 4x^2 + 3
B. 4x^2 + 12x
C. 5x + 3
D. 4x^2 + 7x

22.3. What is (x + 2)(x + 5)?

A. x^2 + 7x + 10
B. x^2 + 10x + 7
C. 2x^2 + 7x + 10
D. x^2 + 3x + 10

22.4. If p(x) = x^2 - 3x + 1, what is p(2)?

A. -1
B. 1
C. 3
D. 5

22.5. An area model for (x + 2)(x + 4) helps you find:

A. a factor only
B. the expanded product
C. the slope
D. the degree only

23. Evaluate u(x) = (x + 1)(x - 2) when x = 6. Answer with a number.

23.1. What is (2x^2 + 3x) + (x^2 - x)?

A. 3x^2 + 2x
B. 2x^4 + 2x
C. x^2 + 4x
D. 3x^2 - 2x

23.2. What is 4x(x + 3)?

A. 4x^2 + 3
B. 4x^2 + 12x
C. 5x + 3
D. 4x^2 + 7x

23.3. What is (x + 2)(x + 5)?

A. x^2 + 7x + 10
B. x^2 + 10x + 7
C. 2x^2 + 7x + 10
D. x^2 + 3x + 10

23.4. If p(x) = x^2 - 3x + 1, what is p(2)?

A. -1
B. 1
C. 3
D. 5

23.5. An area model for (x + 2)(x + 4) helps you find:

A. a factor only
B. the expanded product
C. the slope
D. the degree only

24. Write a polynomial in factored form with zeros 2 and -5. Answer as an equation.

24.1. Which factors 8x + 12?

A. 4(2x + 3)
B. 2(4x + 12)
C. 8(x + 12)
D. 4(x + 3)

24.2. Which factors x^2 - 25?

A. (x - 5)(x + 5)
B. (x - 25)(x + 1)
C. (x - 5)^2
D. (x + 25)(x - 1)

24.3. Which factors x^2 + 7x + 12?

A. (x + 3)(x + 4)
B. (x + 2)(x + 6)
C. (x - 3)(x - 4)
D. (x + 12)(x + 1)

24.4. Before factoring 6x^2 + 9x, what should you check first?

A. the y-intercept
B. the greatest common factor
C. the degree parity
D. the zeros

24.5. If (x - 4)(x + 1) = 0, one possible x-value is:

A. 5
B. 4
C. 3
D. -4

25. Write a polynomial in factored form with zeros -1, 3, and 4. Answer as an equation.

25.1. Which factors 8x + 12?

A. 4(2x + 3)
B. 2(4x + 12)
C. 8(x + 12)
D. 4(x + 3)

25.2. Which factors x^2 - 25?

A. (x - 5)(x + 5)
B. (x - 25)(x + 1)
C. (x - 5)^2
D. (x + 25)(x - 1)

25.3. Which factors x^2 + 7x + 12?

A. (x + 3)(x + 4)
B. (x + 2)(x + 6)
C. (x - 3)(x - 4)
D. (x + 12)(x + 1)

25.4. Before factoring 6x^2 + 9x, what should you check first?

A. the y-intercept
B. the greatest common factor
C. the degree parity
D. the zeros

25.5. If (x - 4)(x + 1) = 0, one possible x-value is:

A. 5
B. 4
C. 3
D. -4

26. Expand (x - 2)(x + 3). Answer with an equivalent expression.

26.1. Which factors 8x + 12?

A. 4(2x + 3)
B. 2(4x + 12)
C. 8(x + 12)
D. 4(x + 3)

26.2. Which factors x^2 - 25?

A. (x - 5)(x + 5)
B. (x - 25)(x + 1)
C. (x - 5)^2
D. (x + 25)(x - 1)

26.3. Which factors x^2 + 7x + 12?

A. (x + 3)(x + 4)
B. (x + 2)(x + 6)
C. (x - 3)(x - 4)
D. (x + 12)(x + 1)

26.4. Before factoring 6x^2 + 9x, what should you check first?

A. the y-intercept
B. the greatest common factor
C. the degree parity
D. the zeros

26.5. If (x - 4)(x + 1) = 0, one possible x-value is:

A. 5
B. 4
C. 3
D. -4

27. Expand x(x - 1)(x + 2). Answer with an equivalent expression.

27.1. Which factors 8x + 12?

A. 4(2x + 3)
B. 2(4x + 12)
C. 8(x + 12)
D. 4(x + 3)

27.2. Which factors x^2 - 25?

A. (x - 5)(x + 5)
B. (x - 25)(x + 1)
C. (x - 5)^2
D. (x + 25)(x - 1)

27.3. Which factors x^2 + 7x + 12?

A. (x + 3)(x + 4)
B. (x + 2)(x + 6)
C. (x - 3)(x - 4)
D. (x + 12)(x + 1)

27.4. Before factoring 6x^2 + 9x, what should you check first?

A. the y-intercept
B. the greatest common factor
C. the degree parity
D. the zeros

27.5. If (x - 4)(x + 1) = 0, one possible x-value is:

A. 5
B. 4
C. 3
D. -4

28. Which statement about y = -x^3 + 2x is correct?

The right side falls because the leading term is negative.

A. Both ends go up.
B. As x goes right, y goes down.
C. As x goes left, y goes down.
D. The graph has even-degree end behavior.

28.1. A polynomial of even degree with positive leading coefficient has ends that:

A. both rise
B. both fall
C. go opposite directions
D. touch the x-axis only

28.2. A polynomial of odd degree with positive leading coefficient has ends that:

A. both rise
B. both fall
C. left down and right up
D. left up and right down

28.3. If x = -3 is a zero, which factor belongs?

A. x - 3
B. x + 3
C. 3x - 1
D. x^2 + 3

28.4. To test whether 2 is a zero of f(x), you should compute:

A. f(0)
B. f(1)
C. f(2)
D. 2f(x)

28.5. The Fundamental Theorem of Algebra guarantees that a degree-4 polynomial has:

A. exactly 4 complex zeros counting multiplicity
B. at most 2 zeros
C. only real zeros
D. no repeated zeros

29. Write a polynomial in factored form with zeros 1, 1, and -2. Answer as an equation.

29.1. Which factors 8x + 12?

A. 4(2x + 3)
B. 2(4x + 12)
C. 8(x + 12)
D. 4(x + 3)

29.2. Which factors x^2 - 25?

A. (x - 5)(x + 5)
B. (x - 25)(x + 1)
C. (x - 5)^2
D. (x + 25)(x - 1)

29.3. Which factors x^2 + 7x + 12?

A. (x + 3)(x + 4)
B. (x + 2)(x + 6)
C. (x - 3)(x - 4)
D. (x + 12)(x + 1)

29.4. Before factoring 6x^2 + 9x, what should you check first?

A. the y-intercept
B. the greatest common factor
C. the degree parity
D. the zeros

29.5. If (x - 4)(x + 1) = 0, one possible x-value is:

A. 5
B. 4
C. 3
D. -4

30. Write a polynomial in factored form with zeros -3, -1, 2, and 4. Answer as an equation.

30.1. Which factors 8x + 12?

A. 4(2x + 3)
B. 2(4x + 12)
C. 8(x + 12)
D. 4(x + 3)

30.2. Which factors x^2 - 25?

A. (x - 5)(x + 5)
B. (x - 25)(x + 1)
C. (x - 5)^2
D. (x + 25)(x - 1)

30.3. Which factors x^2 + 7x + 12?

A. (x + 3)(x + 4)
B. (x + 2)(x + 6)
C. (x - 3)(x - 4)
D. (x + 12)(x + 1)

30.4. Before factoring 6x^2 + 9x, what should you check first?

A. the y-intercept
B. the greatest common factor
C. the degree parity
D. the zeros

30.5. If (x - 4)(x + 1) = 0, one possible x-value is:

A. 5
B. 4
C. 3
D. -4

31. Expand (x - 1)^2. Answer with an equivalent expression.

31.1. Which factors 8x + 12?

A. 4(2x + 3)
B. 2(4x + 12)
C. 8(x + 12)
D. 4(x + 3)

31.2. Which factors x^2 - 25?

A. (x - 5)(x + 5)
B. (x - 25)(x + 1)
C. (x - 5)^2
D. (x + 25)(x - 1)

31.3. Which factors x^2 + 7x + 12?

A. (x + 3)(x + 4)
B. (x + 2)(x + 6)
C. (x - 3)(x - 4)
D. (x + 12)(x + 1)

31.4. Before factoring 6x^2 + 9x, what should you check first?

A. the y-intercept
B. the greatest common factor
C. the degree parity
D. the zeros

31.5. If (x - 4)(x + 1) = 0, one possible x-value is:

A. 5
B. 4
C. 3
D. -4

32. Expand (x - 1)^2(x + 2). Answer with an equivalent expression.

32.1. Which factors 8x + 12?

A. 4(2x + 3)
B. 2(4x + 12)
C. 8(x + 12)
D. 4(x + 3)

32.2. Which factors x^2 - 25?

A. (x - 5)(x + 5)
B. (x - 25)(x + 1)
C. (x - 5)^2
D. (x + 25)(x - 1)

32.3. Which factors x^2 + 7x + 12?

A. (x + 3)(x + 4)
B. (x + 2)(x + 6)
C. (x - 3)(x - 4)
D. (x + 12)(x + 1)

32.4. Before factoring 6x^2 + 9x, what should you check first?

A. the y-intercept
B. the greatest common factor
C. the degree parity
D. the zeros

32.5. If (x - 4)(x + 1) = 0, one possible x-value is:

A. 5
B. 4
C. 3
D. -4