

12.2.D1 ~ Multiplying Polynomials

Past due on _____ Period _____

Determine the product of the binomials. (If necessary, refer to the 12.2 example "Modeling the Product of Polynomials" in the Chapter 12 Summary.)

1) $(4n + 5)(2n + 1)$

2) $(4v - 4)(v - 3)$

3) $(3x - 5)(4x + 5)$

4) $(4n + 5)(5n + 4)$

5) $(4a - 3)(3a + 1)$

6) $(5n - 1)(n - 3)$

Simplify each expression. (If necessary, refer to the 12.1 example "Adding & Subtracting Polynomial Expressions" in the Chapter 12 Summary.)

7) $(7 + 3v^3) + (3v^3 - 2)$

8) $(5n^3 - 2n^4) - (3n^3 - 6n^4)$

9) $(4x^3 + 3x^4 + 3x) - (8x^3 - 6x)$

10) $(5a^2 - 3a^3 + 2a^4) + (8a^3 - 3a^4 + 4a^2)$

11) $(3x^3 + x^2 - 4 + x) + (5x^3 + 4 + 7x^2)$

12) $(6a^3 - 5 - 6a^4 + 8a) - (4a - 3)$

Factor out the greatest common factor (GCF) from the expression. (If necessary, refer to the 11.4 example "Factoring the GCF from an Algebraic Expression" in the Chapter 11 Summary.

13) $20m - 90$

14) $21x^2 - 24x$

15) $-72n^2 + 56n - 16$

16) $7x^3 - 70x^2 - 28x$

For the parabola whose equation is given, determine the direction of opening, the coordinates of the vertex, and the equation of the axis of symmetry. (If necessary, refer to the 11.6 example "Identifying the Vertex of a Quadratic Function in Vertex Form" in the Chapter 11 Summary.

17) $f(x) = (x + 3)^2 + 3$

18) $f(x) = -2(x - 1)^2 + 1$

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

20) $f(x) = 4(x - 2)^2 + 2$

A model rocket is launched from the ground. The function $g(t) = -16t^2 + 120t$ represents the height of the rocket, $g(t)$ in feet, t seconds after it was launched.

Use a graphing calculator to graph the function given. Identify the characteristics listed. Round your answers to the nearest hundredth, if necessary. (Refer to ALL 11.3 examples in the Chapter 11 Summary.)

21) Identify the coordinates of the vertex.

22) Identify the zeros.

23) What is the domain of the graph?

24) What is the domain of the problem situation?

25) What is the range of the graph?

26) What is the range of the problem situation?

27) What is the rocket's interval of increase?

28) What is the rocket's interval of decrease?