In #1 and #2, simplify by combining like terms.

1. $1.2x - 7.6y^2 + 12.2y^2 - 3.7x$

1. _____

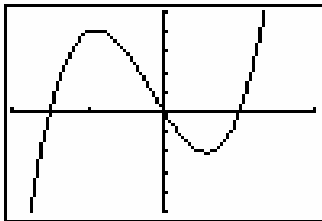2. $\left(2.7x^3 - 1.4x + 2.5\right) - \left(-1.3x^2 + 7.2x + 0.8\right)$

2. _____

3. The formula $f(x) = -0.091x^3 + 0.66x^2 + 5.78x + 23.5$ models the monthly average dew point in degrees Fahrenheit in Birmingham, Alabama, where $x = 1$ corresponds to January, $x = 2$ corresponds to February, etc. What is the average dew point in April? Approximate answer to the nearest tenth.

3. _____

4. Use the graph to evaluate $f(2)$.

4. _____

[−4, 4, 2] by [−10, 10, 2]

5. The length of a rectangular plot is x. The width of the plot is 5 less than the length: $x - 5$. The area of the plot is represented by $x(x - 5)$. Multiply this expression.

5. _____

6. The base of a triangle is x. The height of the triangle is $\frac{2}{3}$ times the base: $\frac{2}{3}x$. The area of the triangle is represented by $\frac{1}{2} \cdot x \cdot \frac{2}{3}x$. Multiply this expression.

6. _____

7. The likelihood that a softball pitch will be a strike is x percent.   7. _____
    The likelihood that two consecutive pitches will not be strikes

    is $\left(1-\frac{x}{100}\right)^2$. Multiply this expression.

8. The product of three consecutive even integers is represented   8. _____
    by $x(x+2)(x+4)$. Multiply this expression.

In #9 through #13, factor completely.

9. $6x^2 +5x-4$ 9. _____

10. $2x^3 -18x$ 10. _____

11. $2x^3 -3x^2 +2x-3$ 11. _____

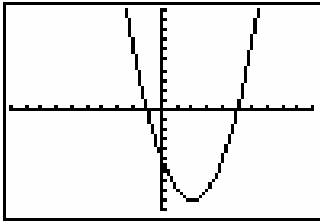12. $4x^2 +28x+49$ 12. _____

13. $8y^3 +125$ 13. _____

14. The height of an object thrown into the air is represented by   14. _____
     $-16t^2 +64t+4,$ where t is the time, in seconds. Identify
     the degree and leading coefficient of this polynomial.   _____

15. Multiply $\left(4u^3 +v^5\right)^2$.   15. _____

16. Use the graph to factor $x^2 - 4x - 5$.   16. _____

$[-10, 10, 1]$ by $[-10, 10, 1]$

17. The product of two consecutive odd positive integers is 63.   17. _____
    Find the two integers.

18. Use factoring to solve the polynomial equation $1.4x^2 = 4.2x$.   18. _____

19. A rectangular picture frame is 5 inches higher than it is wide   19. _____
    and has an area of 126 square inches. Write an equation and
    use factoring to solve. Find the dimensions of the frame.   _____

20. The height in feet of a projectile after t seconds is given by   20. _____
    $h(t) = -16t^2 + 96t$. Determine the values of t for which the
    projectile is at ground level.