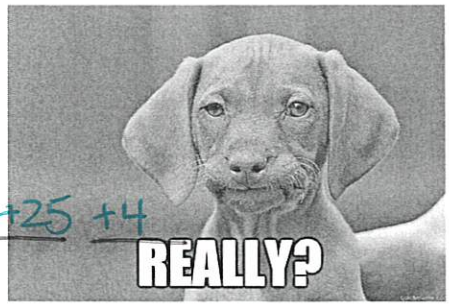
SPIRAL REVIEW #2.1

Key



1. Determine the center and the radius of $x^2 + y^2 + 10x - 4y + 25 = 0$.

$x^2 + 10x \underline{+25} + y^2 - 4y \underline{+4} = -25 \underline{+25} \underline{+4}$

$(x+5)^2 + (y-2)^2 = 4$

Center $(-5, 2)$

radius $= 2$

2. Factor the expression completely: $64x^8 - y^{12}$

$(8x^4 + y^6)(8x^4 - y^6)$

3. Solve $2x^2 + 8x + 12 = 0$ and express the result in simplest $a + bi$ form.

$x = \dfrac{-8 \pm \sqrt{(8)^2 - 4(2)(12)}}{2(2)}$

$x = \dfrac{-8 \pm \sqrt{-32}}{4}$

$x = \dfrac{-8 \pm 4i\sqrt{2}}{4}$

$x = -2 \pm i\sqrt{2}$

4. Factor completely: $2x^3 - 6x^2 - x + 3$

$(2x^3 - 6x^2) + (-x + 3)$

$2x^2(x-3) - 1(x-3)$

$(2x^2 - 1)(x-3)$

5. Solve for all values of x: $2\sqrt{x} - x = -3$

$(2\sqrt{x})^2 = (x-3)^2$

$4x = (x-3)(x-3)$

$4x = x^2 - 6x + 9$

$0 = x^2 - 10x + 9$

$0 = (x-1)(x-9)$

$x = 1 \quad x = 9$

$\{9\}$