

Math 102 Quiz 5
February 17, 2012

name_____

Instructions: Show your work, and box your final answer. **No calculators** allowed.

If you encounter an imaginary number, say so (don't try to finish the problem).

1. (70pts) Solve these equations. Check your answers.

(a) $\sqrt{5+x} = 3$

(c) $(m+1)^3 = -1$

(b) $(a-3)^2 = 4$

(d) $-2b^4 + 7 = 5$

1. (continued)

(e) $4 \cdot \sqrt[3]{2 \cdot q} = -12$

(f) $5 + \sqrt{6y^2 - 8} = 9$

2. (30pts) Simplify the following radical expressions:

(a) $\sqrt[4]{-16}$

(c) $\frac{\sqrt[3]{-32}}{\sqrt[3]{-2}}$

(b) $\sqrt{20x^9y}$

(d) $\sqrt[3]{b^6(k+3)^7} \cdot \sqrt[3]{(k+3)^2}$

Extra credit: (6pts) A raindrop is falling through the air. Its height, after t seconds have passed, has the formula

$$h = -(t + 10)^2 + C \qquad (h \text{ is height}).$$

If $C = 400$, at what time does the raindrop hit the ground?