

Name: \_\_\_\_\_  
Date: \_\_\_\_\_  
Class: \_\_\_\_\_

Algebra  
Unit 9  
HW 9-1

1) Evaluate:  $\sqrt{-64}$  and  $\sqrt[3]{-64}$ . Why does the 3<sup>rd</sup> root exist and the square root (2<sup>nd</sup> root) not exist?

↑  
no solution

↑  
-4

neg x neg always = positive so there is no  $\sqrt{-64}$ .

But  $-4 \cdot -4 \cdot -4 = -64$  so  $\boxed{\sqrt[3]{-64} = -4}$

2) Evaluate:  $(\sqrt{18.5})^2$  and  $\sqrt{19.723^2}$

↑  
18.5

↑  
19.723

3) Evaluate:  $\sqrt{5} + \sqrt{5} = 2\sqrt{5}$

4) Evaluate:  $(\sqrt{5})(\sqrt{5}) = 5$

$\sqrt{5} \rightarrow$

5) Evaluate:  $(\sqrt{19})(\sqrt{3}) = \sqrt{57}$

~~\_\_\_\_\_~~  
~~\_\_\_\_\_~~

6) Evaluate:  $5\sqrt{6} - 8\sqrt{3} + 10\sqrt{6} - 9\sqrt{3}$

$\$$   $\boxed{15\sqrt{6} - 17\sqrt{3}}$

7) Evaluate:  $\sqrt{\frac{225}{144}} = \frac{5}{4}$

$\frac{\sqrt{225}}{\sqrt{144}} = \frac{15}{12} = \frac{5}{4}$

8) Simplify:  $(\sqrt{3} - \sqrt{11})(\sqrt{5} + \sqrt{13})$

$\sqrt{15} + \sqrt{39} - \sqrt{55} - \sqrt{143}$

\* nothing more can be done

9) Simplify:  $8\sqrt{7} - 2(3\sqrt{7} - 13\sqrt{9}) + 14 - 12\sqrt{7}$

$(8\sqrt{7}) - (6\sqrt{7}) + 26(\sqrt{9}) + 14 - (12\sqrt{7})$

$-10\sqrt{7} + 26(3) + 14$

$-10\sqrt{7} + 78 + 14$

~~$-10\sqrt{7} - 64$~~

$-10\sqrt{7} + 92$

10) Evaluate:  $\sqrt{9y^4}$

$3y^2$

11) Evaluate:  $\sqrt{121x^2y^6}$

$11xy^3$