

## MTH 100 Summer 2009 Test 3 Problem Sheet

Simplify each radical. Give only Real answers

1.)  $\sqrt{\frac{1}{32}}$     2.)  $\sqrt{x^2 + 10x + 25}$     3.)  $\sqrt[3]{8a^3}$     4.)  $\sqrt{-25}$

5.) What is the distance between the point (5,9) and (8,13). Also see # 33 pg 595

Simplify and combine these expressions.

7.)  $\sqrt{7} \sqrt{7}$     8.)  $\frac{\sqrt{128}}{\sqrt{2}}$     9.)  $\frac{\sqrt{75y^5}}{\sqrt{3y}}$     10.)  $\sqrt{80c^3}$     11.)  $2\sqrt[3]{16} - \sqrt[3]{54} - 3\sqrt[3]{128}$

Simplify each expression, Rationalize denominator if needed

12.)  $\sqrt{3}\sqrt{27}$     13.)  $(2\sqrt{3} + 1)(\sqrt{3} - 1)$     14.)  $\sqrt{\frac{3}{2}}$     15.)  $\frac{3}{\sqrt{3}-1}$     16.)  $\frac{\sqrt{x} + \sqrt{y}}{\sqrt{x} - \sqrt{y}}$

Solve each equation

17.)  $\sqrt{6x+1} + 2 = 7$     18.)  $\sqrt[3]{7n-1} = 3$     19.)  $\sqrt{x+2} = \sqrt{4-x}$   
20.)  $\sqrt{2x+5} + \sqrt{2x+1} + 4 = 0$

Perform each operation and simplify. Give answer in  $a + bi$  form where applicable.

21.)  $(2 + \sqrt{2}i)(3 - \sqrt{2}i)$     22.)  $\frac{5}{2-i}$     23.)  $(2 + i)(2 - i)(i + 1)$   
24.)  $\frac{\sqrt{3} + \sqrt{2}i}{\sqrt{3} - \sqrt{2}i}$     25.)  $i^{27}$

Solve by completing the square.

$$6x^2 + 11x + 3 = 0$$