

## Math 172 – Quiz #6

December 4, 2008  
Instructor: Patricia Wrean

Name: \_\_\_\_\_

Show all work to get full credit.

Total: 40 points

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1. Simplify the following, leaving any irrational answers in simplified radical form.  
Assume any variables represent positive real numbers. (8 points)

a)  $\left(\frac{27}{64}\right)^{-1/3}$  \_\_\_\_\_

b)  $\left(\frac{r}{4r^{1/2}t^{-3/2}}\right)^{-2}$  \_\_\_\_\_

c)  $\frac{6}{\sqrt[3]{4a^2b}}$  \_\_\_\_\_

2. Simplify the following. Assume all variables represent positive real numbers. (7 points)

a)  $\sqrt{98p^4q^{19}} \div \sqrt{pq^3}$  \_\_\_\_\_

b)  $\frac{\sqrt{2}}{\sqrt{2} + \sqrt{10}}$  \_\_\_\_\_

3. Simplify the following. (5 points)

a)  $(-2i)^4$  \_\_\_\_\_

b)  $\frac{5i}{1-2i}$  \_\_\_\_\_

4. Find the real solutions to the following equations. (10 points)

a)  $x = \sqrt{3x(x+2)}$

\_\_\_\_\_

b)  $17 = 9 - (2b)^3$

\_\_\_\_\_

c)  $\sqrt{5-k} - \sqrt{5+k} = 2$

\_\_\_\_\_

5. Solve the following equations. Solutions may be complex. (7 points)

a)  $30 = 6 - (2z - 1)^2$

\_\_\_\_\_

b)  $(2n - 7)^{-2/3} = 1$

\_\_\_\_\_

6. Rewrite as a single radical.

(3 points)

$\sqrt[3]{m} \sqrt{5m}$

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