Name:_____ **TA:_____**

Math 11 Pre-Calculus LG 9 Ver A

1. Convert to a mixed radical.

   a) $\sqrt{45}$ b) $\sqrt{125x^2y^5}$

2. Order the following radicals from least to greatest by converting each one to an entire radical.

   $2\sqrt{5}, \quad 3\sqrt{2}, \quad 5\sqrt{3}, \quad 4\sqrt{4}$

3. Simplify.

   a) $5\sqrt{3}-\sqrt{12}$ b) $5\sqrt[3]{16}-4\sqrt{2}+7\sqrt[3]{2}-2\sqrt{18}$

4. Multiply and then simplify.

a) $\left(\sqrt{12}\right)\left(\sqrt{6}\right)$

b) $4\sqrt{22x}(\sqrt{2x^4})$

5. Expand and simplify.

a) $\left(5\sqrt{3}-\sqrt{8}\right)^2$

b) $(2\sqrt{3}-5)(4\sqrt{8}+3\sqrt{6})$

6. Divide then rationalize the denominator.

$$\frac{-5\sqrt{12}}{10\sqrt{24}}$$

7. Rationalize the denominator. Simplify.

$$\frac{2\sqrt{3}}{5-2\sqrt{2}}$$

8. Solve the following equations.

a) $5 = \sqrt{2x-3}$

b) $-5 = 3 + \sqrt{-8x}$

c) $\sqrt{2x-3} = \sqrt{x+1}$

d) $\sqrt{x+5} = x-1$

9. The formula $s = 2\pi\sqrt{\frac{l}{32}}$ represents the swing of a pendulum, where *s* is the time, in seconds, to swing back and forth, and *l* is the length of the pendulum, in feet.

a) Solve the formula for *l.*

b) What is the length of a pendulum to **2 decimal places** that makes one swing in 1.5 s?