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| **Math 042: Exam III** | **Date: April 26, 2010** |
| **Name:** _____ | **Section:** _____ |

**1.** Perform the indicated operation and simplify.

$$\frac{1}{k+3} + \frac{4}{3k}$$

**Your answer:** _____ .

**2.** Perform the indicated operation and simplify.

$$\frac{1}{x+3} - \frac{3}{x^2+5x+6}$$

**Your answer:** _____ .

**3.** Simplify

$$\frac{\frac{6}{x}+\frac{3}{x^2}}{\frac{3}{x}+1}$$

**Your answer:** _____ .

**4.** Solve for $x$.

$$\frac{5}{x+5}=\frac{3x}{x+5}+2$$

**Your answer:** _____ .

**5.** Simplify: $\sqrt{12} + \sqrt{48} - 2\sqrt{20}$ **Your answer:** _____ .

**6.** Simplify:

$$\left(\frac{x^{1/2}y^{2/3}}{x^{1/3}y^{-1/4}}\right)^{12}$$

**Your answer:** _____ .

**7.** Rationalize the denominator and simplify.

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

**Your answer:** _____ .

**8.** Solve for $y$: $\sqrt{3y+4} = 7$ **Your answer:** _____ .

**9.** Express the following in simplest radical form.

(a) $\sqrt{54x^7y^6}$ **Your answer:** _____ .

(b) $\sqrt[3]{54x^7y^6}$ **Your answer:** _____ .

(c) $(\sqrt{7a})^2$ **Your answer:** _____ .

(d) $(7\sqrt{a})^2$ **Your answer:** _____ .

**10.** Evaluate $(16^{-1/2})(27^{2/3})$ **Your answer:** _____