Name: _____

Math 181 Quiz 5 M#: _____

Do not use any unapproved aids while taking this assessment. Read each question carefully and be sure to show all work in the space provided.

1. For each limit, explain if L'Hôpital's Rule may be applied. If it can, explain how to use this rule to find the limit.

(a)

$$\lim_{x\to\infty} \frac{3\,x + 4\,e^x}{-2\,x - 3\,e^x}$$

$$\lim_{x\to\infty} \frac{3\,x + 4\,e^x}{-2\,x - 3\,e^x} = -\frac{4}{3}$$

(b)

$$\lim_{x\to-3} \frac{x^2 + 11\,x + 24}{x^2 + 12\,x + 27}$$

$$\lim_{x\to-3} \frac{x^2 + 11\,x + 24}{x^2 + 12\,x + 27} = \frac{5}{6}$$

(c)

$$\lim_{x\to0} \frac{-8\,\sin\left(-2\,x\right) - 9}{4\,x - 5}$$

L'Hôptial's Rule does not apply.

(d)

$$\lim_{x\to0} \frac{3\,\cos\left(-4\,x\right) - 3}{-5\,x}$$

$$\lim_{x\to0} \frac{3\,\cos\left(-4\,x\right) - 3}{-5\,x} = 0$$