

Present neatly on separate paper. Justify for full credit. No Calculators.

Name \_\_\_\_\_ Score \_\_\_\_\_ ~10 minutes

1. Consider the function  $f(x) = \frac{2}{x} + \sqrt{x}$ . Use the definition of slope to determine the equation of the tangent line at the point on the curve where  $x = a$ . [8 points]

2. Each limit represents the derivative of some function at some number. State such an  $f$  and  $a$  in each case. [2 points]

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a)

$$\lim_{h \rightarrow 0} \frac{\sqrt[4]{16+h} - 2}{h}$$

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b)

$$\lim_{x \rightarrow 1} \frac{x^{17} - 1}{x - 1}$$

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