Practice worksheet | Differentiation and applications

Quotient rule

Name: _____ Date: _____

6 questions | 14 marks

1. Differentiate $\frac{3x+1}{x+2}$. [2 marks]

2. Differentiate $\frac{x^2-4}{x}$ efficiently. [2 marks]

3. Find $f'(2)$ if $f(x)=\frac{x^2}{x+1}$. [2 marks]

4. Differentiate $\frac{e^x}{x+1}$. [2 marks]

5. Find the tangent to $y=\frac{x+1}{x-1}$ at $x=0$. [3 marks]

6. Why is the derivative formula for $\frac{x^2-1}{x-1}$ not valid at $x=1$, even though cancellation gives $x+1$ elsewhere? [3 marks]