Quiz 1

Name: Key Row: _____

1. Find the limits, showing all work.

[8] **a.** $\lim_{x\to 5} \dfrac{x^2+x-30}{x-5}$

$= \lim_{x\to 5} \dfrac{(x-5)(x+6)}{x-5} = \lim_{x\to 5} (x+6) = 5+6 = 11$

(3) (3) (2)

[12] **b.** $\lim_{h\to 0} \dfrac{\frac{2}{3+h} - \frac{2}{3}}{h} = \lim_{h\to 0} \dfrac{\left[\dfrac{2\cdot 3 - 2(3+h)}{3(3+h)}\right]}{h} = \lim_{h\to 0} \left[\dfrac{6-6-2h}{3(3+h)} \cdot \dfrac{1}{h}\right]$

(3) (1)

(2)

$= \lim_{h\to 0} \left[\dfrac{-2h}{3(3+h)\cdot h}\right] = \lim_{h\to 0} \dfrac{-2}{3(3+h)} = \dfrac{-2}{3\cdot 3} = \boxed{\dfrac{-2}{9}}$

(2) (2)