

Quiz 5

This quiz is graded out of 10 marks. No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. pg.75#57 (4 marks) Find $\frac{f(x+h)-f(x)}{h}$.

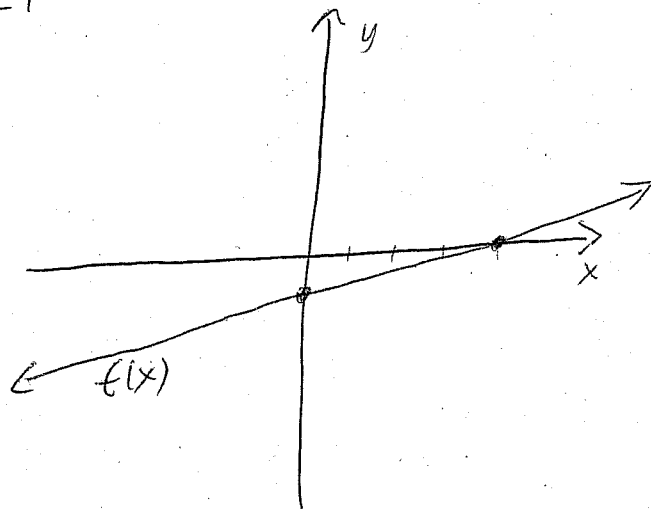
$$\begin{aligned}
 f(x) &= \frac{x}{x+1} \\
 \frac{f(x+h)-f(x)}{h} &= \frac{\frac{x^2+xh+x+h}{(x+h+1)(x+1)} - \frac{x^2-xh-x}{(x+1)(x+1)}}{h} \\
 &= \frac{\frac{x+h}{x+h+1} - \frac{x}{x+1}}{h} \\
 &= \frac{\frac{(x+h)(x+1) - x(x+h+1)}{(x+h+1)(x+1)}}{h} = \frac{1}{(x+h+1)(x+1)}
 \end{aligned}$$

Question 2. pg.81#2k (4 marks) Use the intercept(s) to graph each linear function:

$$\begin{aligned}
 f(x) &= \frac{1}{4}(x-4) \\
 f(x) &= \frac{1}{4}x - 1 \\
 y &= \frac{1}{4}x - 1
 \end{aligned}$$

y-int:
 $(0, -1)$

x-int:
 let $y=0$
 $0 = \frac{1}{4}x - 1$
 $1 = \frac{1}{4}x$
 $4 = x$
 $\therefore (4, 0)$



Question 3. pg.90#8g (2 marks) Find k if the line $3x + ky = 5$ is parallel to the line $2x - 7y = 4$.

$$\begin{aligned}
 ky &= -3x + 5 \\
 y &= \frac{-3}{k}x + \frac{5}{k} \\
 2x - 7y &= 4 \\
 7y &= 2x - 4 \\
 y &= \frac{2}{7}x - \frac{4}{7}
 \end{aligned}$$

$\frac{-3}{k} = \frac{2}{7} \implies -21 = k$