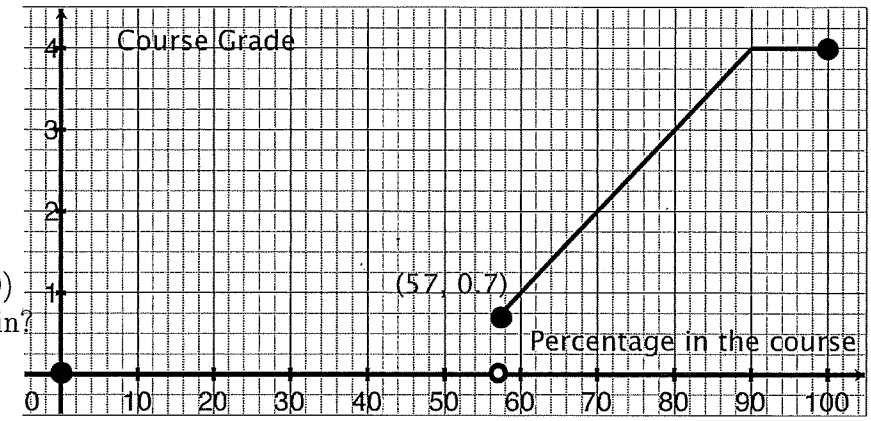
Quiz 1 Key

Show *all* your work. Reasonable supporting work must be shown for any partial credit. There are *two* sides to this quiz.

1. Let f be the graph below and to the right.



(a) [1] (§1.3 #60)
Find $f(90)$

4.0

(b) [1] (WebHW2 #19)
What is the domain?

(+.5) [0, 100]

(+.5) inputs/x values

(c) [1] (§1.1 #50)
Find an x-intercept.

There are Lots of correct answers!

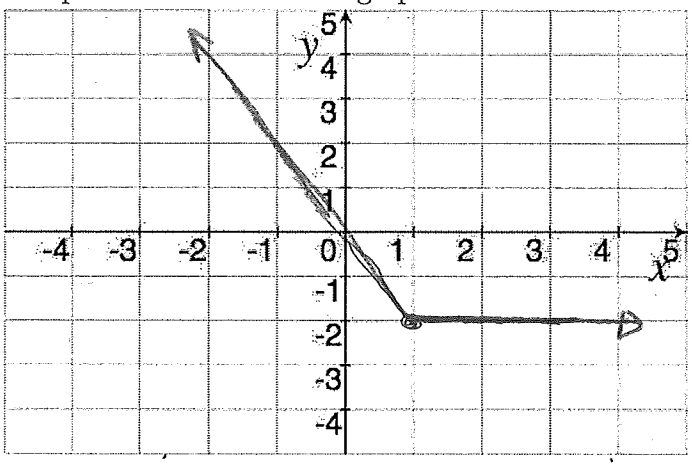
0 works

10 works

any x value between [0, 57)

2. [2] (GraphWks #4) Plot (at least) two points that are on the graph of

$$g(x) = \begin{cases} -2x & \text{if } x < 1 \\ -2 & \text{if } 1 \leq x \end{cases}$$



1 points (+1)

both on the graph (+1)

3. [2] (§A.3 #58) Perform the indicated operations to simplify $\dfrac{3-\frac{x}{2}}{x+1} - \dfrac{1}{2(x+1)}$

$$\left(\frac{2}{2}\right)\frac{3-\frac{x}{2}}{x+1} - \frac{1}{2(x+1)}$$

fractions
den (+.5)
mult by 1 (+.5)
subtract (+.5)
simplify (+.5)

$$\frac{6-x}{2(x+1)} - \frac{1}{2(x+1)}$$

$$\frac{6-x-1}{2(x+1)} = \frac{5-x}{2(x+1)}$$

OR

$$\frac{\frac{3}{1}-\frac{x}{2}}{x+1} - \frac{1}{2(x+1)} = \frac{\frac{2\cdot 3}{2}-\frac{x}{2}}{x+1} - \frac{1}{2(x+1)}$$

$$= \frac{\frac{6-x}{2}}{x+1} - \frac{1}{2(x+1)} = \frac{6-x}{2} \div (x+1) - \frac{1}{2(x+1)}$$

$$= \frac{6-x}{2}\cdot\frac{1}{(x+1)} - \frac{1}{2(x+1)} = \frac{6-x-1}{2(x+1)} = \frac{5-x}{2(x+1)}$$

4. [3] (FractionWks#2 & Quiz1 from last TMath 115 class) You have 12 oz of mocha that is 25% espresso sitting in a 16 oz cup. Write a rational expression in x whose values give the percentage (in decimal form) of espresso in the cup when x oz of espresso are added to it.

% of espresso in a cup $= \dfrac{\text{amount of espresso}}{\text{total liquid}}$

$= \dfrac{\text{original espresso + new espresso}}{\text{total liquid}}$ (+.5) (+.5)

$= \dfrac{25\% \text{ of } 12 \text{ oz} + x \text{ oz}}{12 \text{ oz} + x \text{ oz}}$

start (+.5)

$= \dfrac{3+x}{12+x}$ (+.5)

12 in den +.5

3 in num +.5