Quiz 1

Key

Show *all* your work. No credit is given without reasonable supporting work. There are *two* sides to this quiz.

1. [3] (WebHW1 #6) Let $f(x) = \dfrac{x}{\sqrt{9-x^2}}$. Find $f\left(\frac{4}{3}\right)$ and simplify.

$$f\left(\tfrac{4}{3}\right) = \frac{\frac{4}{3}}{\sqrt{9-\left(\frac{4}{3}\right)^2}} = \frac{4/3}{\sqrt{9-\frac{16}{9}}} = \frac{4/3}{\sqrt{\frac{81}{9}-\frac{16}{9}}} = \frac{4/3}{\sqrt{\frac{65}{9}}}$$

Simplified

$$= \frac{4/3}{\frac{\sqrt{65}}{\sqrt{9}}} = \frac{4}{3} \div \frac{\sqrt{65}}{\sqrt{9}} = \frac{4}{3} \cdot \frac{3}{\sqrt{65}} = \frac{4}{\sqrt{65}} \text{ or } \frac{4\sqrt{65}}{65} \approx .496$$

2. (Quiz1 Winter 2016) Define G that takes numbers to the letter that it starts with when written in english. For example, $G(2) =$ t since two begins with the letter t.

   (a) [1] (§1.1 #30) Is the point $(6, s)$ on the graph of G? Why or why not?

   +.5 yes

   input output

   +.5 $G(6)$ returns the first letter of the word six which is s.

   (b) [1] Is G a function? Why or why not.

   +.5   +.5

   Yes. All #'s have a spelling that ~~has a~~ ~~unique first letter~~ is consistent in english

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3. Let g be the piecewise defined graph shown below.
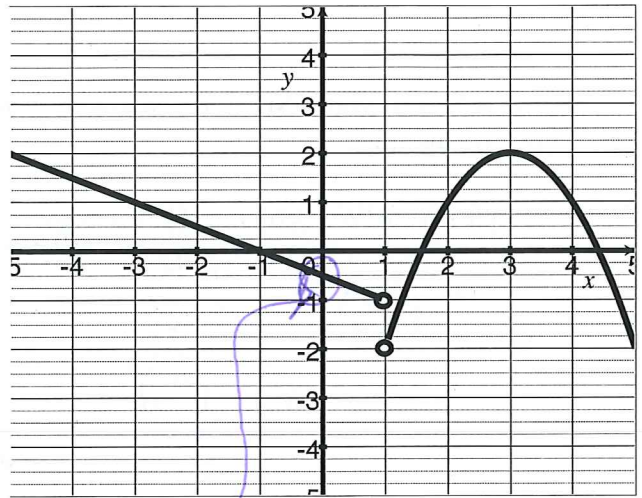
(a) [1] (§1.3 #56) Find $g(-3)$

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(b) [2] (§1.1 #44)
Estimate x such that $g(x) = 0$.

i.e. the x-intercepts (+.5)

$x = -1, 1.5, 4.5$
(+.5) (+.5) (+.5)

(c) [1] (§1.1 #44) Identify or estimate the y intercept.

$-\frac{1}{2}$

(d) [1] (FunctionWks #1) What is the domain of g?

x values (+.5)

$x \neq 1$ *or*   all #'s but 1   *or* $(-\infty, 1) \cup (1, \infty)$
got it (+.5)

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