

Quiz 1

Key

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

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

(a) [1] (§1.3 #56) Find $f(2)$

i.e. y-value when $x=2$

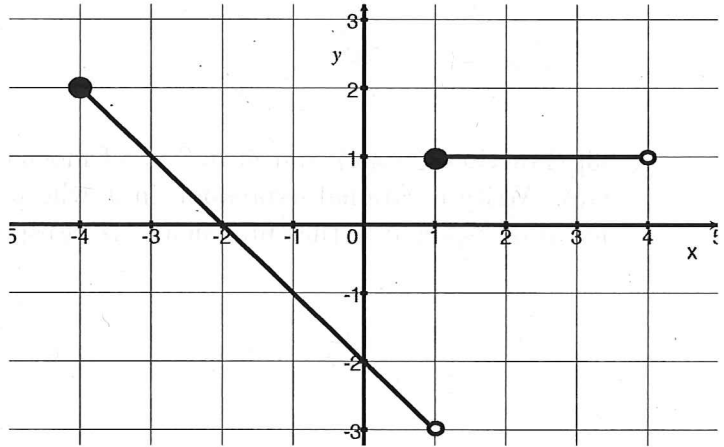
1

(b) [1] (§1.3 #56) Find $f(-3)$

1

(c) [1] (WebHW3 #6) What are the x -intercepts?

-2



i.e. where does the graph cross the x-axis

2. [2] (GraphWks #4 & WebHW3 #19) Plot two points that are on the graph of

$$g(x) = \begin{cases} 1 & \text{if } x < 2 \\ 3x & \text{if } 2 \leq x \end{cases}$$

note: lots of correct answers
 (+1) for each

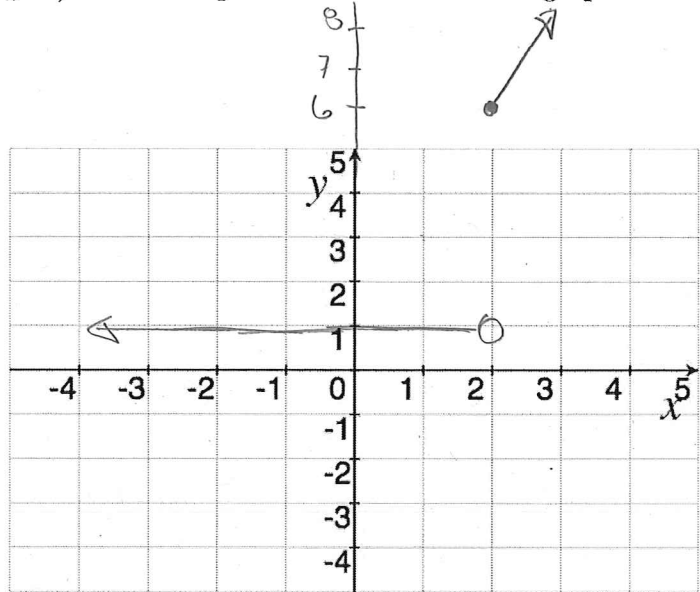
$$g(-3) = 1$$

$$g(-2.5) = 1$$

$$g(-1) = 1$$

$$g(2) = 6$$

$$g(3) = 9$$



3. [2] (WebHW2 #10) Simplify $\frac{3}{2} \cdot \frac{2}{a^2}$

$$\begin{aligned} & \frac{3}{a} \div \frac{2}{a^2} \\ &= \frac{3}{a} \cdot \frac{a^2}{2} \quad \begin{array}{l} \text{div } (+.5) \\ \text{mult } (+.5) \end{array} \\ &= \frac{3a \cdot a}{2a} = \frac{3a}{2} \quad \text{simplify } (+1) \end{aligned}$$

$$\begin{aligned} \text{or} \quad & \frac{3/a}{2/a} \cdot a = \frac{3/a}{2/a} = \frac{3}{2/a} \\ &= 3 \div 2/a = 3 \cdot \frac{a}{2} = \frac{3a}{2} \end{aligned}$$

4. [3] (FractionWks#2) You have 8 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.

$$\begin{aligned} \text{percentage of espresso} &= \frac{\text{espresso oz}}{\text{total oz}} \quad (+.5) \\ &= \frac{\text{original espresso} + \text{new espresso}}{\text{original mocha} + \text{added liquid}} \quad \begin{array}{l} (+.5) \\ (+.5) \end{array} \\ &= \frac{.25 \cdot 8 + x}{8 + x} \quad \begin{array}{l} (+.5) \\ (+.5) \end{array} \\ &= \frac{2 + x}{8 + x} \quad \begin{array}{l} (+.5) \\ (+.5) \end{array} \end{aligned}$$

$.25 \frac{\text{esp}}{\text{liquid}} \cdot 8 \text{ liquid} = 2 \text{ espresso}$