Quiz 2 Key

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

1. [2] (Line Wks #13) Find the equation of a line perpendicular to the line that passes through $(-2,-1)$ and $(4,3)$. Note, there are many right answers!

slope of line thru $(-2,-1)$ and $(4,3)$

$\frac{3-(-1)}{4-(-2)} = \frac{3+1}{4+2} = \frac{4}{6} = \frac{2}{3}$ (+1)

$\perp$ slope $\Rightarrow -\frac{3}{2}$ (+1.5)

So (+1.5) $y = -\frac{3}{2}x$ works so does:

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

$y-3 = -\frac{3}{2}(x-4)$

$y = -\frac{3}{2}x+5$

$y = -\frac{3}{2}x-\pi$

2. [1] (§1.6 #20) Let $f(x) = 2x+1$ and $g(x) = 3x^2 - x$. Find $(f \cdot g)(-2)$

$(f\cdot g)(-2) = f(-2)g(-2)$ (+.5)

$= [2(-2)+1][3(-2)^2-(-2)]$ (+1.5)

$= (-3)(14)$

$= -42$

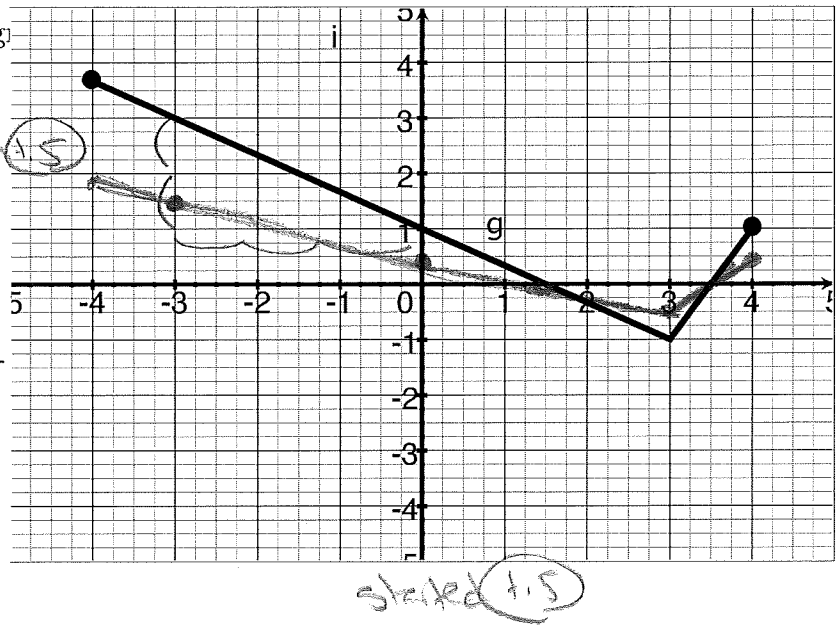
3. Let g be the piecewise defined g

(a) [2] (WebHW5 #11)
Find $(g \circ g)(-3)$

$g(g(-3))$ composition +1.5

$g(2) = -1$ +1 +1.5

(b) [3] (Graph Transf Wks #1)
Given that g is comprised of two lines, find the piecewise defined algebraic rule of g in the form below.



stated +1.5

$$f(x) = \begin{cases} -\frac{2}{3}x + 1 & \text{if } -4 \le x < 3 \\ 2x - 7 & \text{if } 3 \le x \le 4 \end{cases}$$

+1.5 line equation $y = mx + b$

$m = \frac{\text{rise}}{\text{run}} = \frac{-2}{3}$ +1.5

y intercept: 1

$y = -\frac{2}{3}x + 1$ +1.5

line equation

$m = \frac{\text{rise}}{\text{run}} = \frac{2}{1}$ +1.5

thru (4,1)

$1 = 2(4) + b$

$-8 \quad -8$

$-7 = b$ +1.5

$y = 2x - 7$

(c) [2] (§1.5 #86)
Graph the function $\frac{1}{2}g(x)$.

↓

+1 multiply y by $\frac{1}{2}$

+1.5 for each piece above