

Key

Quiz 1

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

1. [2] (WebHW1 #5) Let $f(x) = x^2 + x$. Find $f(x + 8)$.

$$\begin{aligned}
 f(x+8) &= \boxed{}^2 + \boxed{} && (+.5) \\
 &= \boxed{x+8}^2 + \boxed{x+8} \\
 &= \boxed{x+8}^2 + \boxed{x+8} && (+.5) \\
 &= (x+8)^2 + (x+8) && (+.5)
 \end{aligned}$$

no work/no alg error (+.5)

note: if you distributed
 $(x+8)(x+8) + (x+8)$
 $x^2 + 8x + 8x + 64 + x + 8$
 $x^2 + 17x + 72$

2. Let $G(x) = \begin{cases} 4.0 & \text{if } 90 < x \\ .1x - 5 & \text{if } 57 \leq x \leq 90 \\ 0 & \text{if } x < 57 \end{cases}$

- (a) [1] (Functions Wks #1) Find $G(73)$.

$57 \leq 73 \leq 90$ so use line 2 (+.5)

$G(73) = .1 \cdot 73 - 5 = 7.3 - 5 = 2.3$ (+.5)

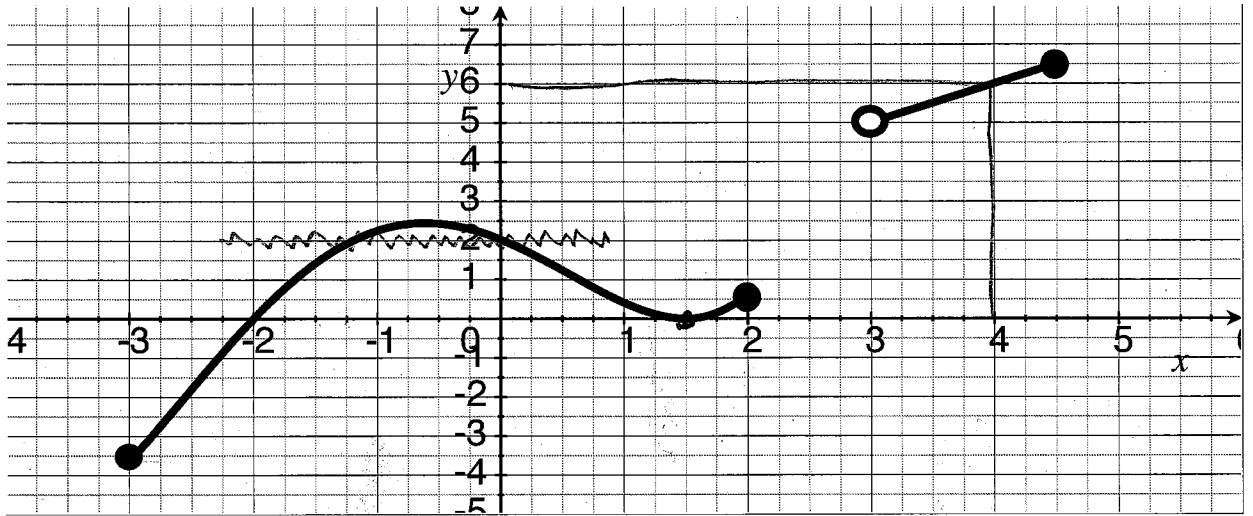
- (b) [1] (§1.1 #30) Is the point $(95, 4)$ on the graph of G ? Why or why not?

yes b/c $G(95) = 4.0$ b/c $90 < 95$
 (+.5) (+.5)

- (c) [1] What is the domain of G .

\mathbb{R} or $(-\infty, \infty)$
 (+.5) notation (+.5)

3. Let g be the piecewise defined graph shown below.



(a) [1] (§1.3 #56) Find $g(4)$

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(b) [2] Estimate x such that $g(x) = 2$.

note for 1.5
y-value is 2 (1.5)

$x = 0$ and $x \approx -1.25$
(1.5) (1.5)

(c) [1] (WebHW1 #16) Identify the x intercept(s).

$(-2, 0)$ and $(1.5, 0)$
(1.5) (1.5)

(d) [1] (§1.3 #14) What is the range of g ?

$[-3.5, 2.5]$ and $(5, 6.5]$

y-values (1.5)
get + (1.5)