

F.IF.C.9: Comparing Functions 2

- 1 Which statement regarding the graphs of the functions below is *untrue*?

$$f(x) = 3 \sin 2x, \text{ from } -\pi < x < \pi$$

$$g(x) = (x - 0.5)(x + 4)(x - 2)$$

$$h(x) = \log_2 x$$

$$j(x) = -|4x - 2| + 3$$

- 1) $f(x)$ and $j(x)$ have a maximum y -value of 3. 3) $g(x)$ and $j(x)$ have the same end behavior as $x \rightarrow -\infty$.
2) $f(x)$, $h(x)$, and $j(x)$ have one y -intercept. 4) $g(x)$, $h(x)$, and $j(x)$ have rational zeros.

- 2 The x -value of which function's x -intercept is larger, f or h ? Justify your answer.

$$f(x) = \log(x - 4)$$

x	$h(x)$
-1	6
0	4
1	2
2	0
3	-2

- 3 Consider the function $h(x) = 2 \sin(3x) + 1$ and the function q represented in the table below.

x	$q(x)$
-2	-8
-1	0
0	0
1	-2
2	0

Determine which function has the *smaller* minimum value for the domain $[-2, 2]$. Justify your answer.

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Answer Section

1 ANS: 2

 $h(x)$ does not have a y -intercept.

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2 ANS:

 $0 = \log_{10}(x-4)$ The x -intercept of h is $(2,0)$. f has the larger value.

$$10^0 = x - 4$$

$$1 = x - 4$$

$$x = 5$$

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3 ANS:

 q has the smaller minimum value for the domain $[-2,2]$. h 's minimum is $-1(2(-1) + 1)$ and q 's minimum is -8 .

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