Quiz 12

Name: _____

Solutions given without showing work will earn a zero. Circle your answers.

Problem 1. **[2+2+2+2=8 points]** Find the function's domain and range, then match the function with its graph.

(a) $f(x) = 2^x$

Domain: $(-\infty, \infty)$ Range: $(0, \infty)$ Graph: D

(b) $g(x) = \left(\frac{1}{3}\right)^x$

Domain: $(-\infty, \infty)$ Range: $(0, \infty)$ Graph: C

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

Domain: $(0, \infty)$ Range: $(-\infty, \infty)$ Graph: A

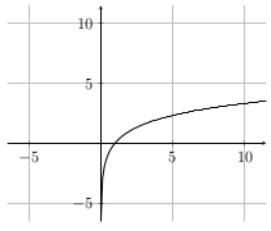
(c) $h(x) = \log_2(3 - x)$

Domain: $(-\infty, 3)$ Range: $(-\infty, \infty)$ Graph: B

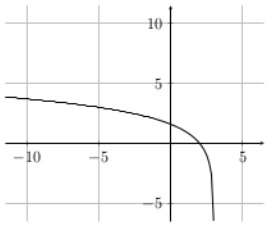
$3 - x > 0$

$3 > x$

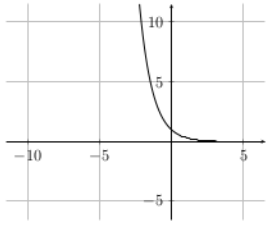
(A)



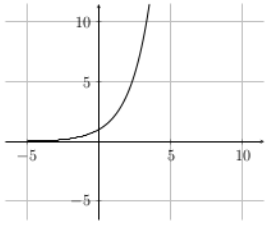
(B)



(C)



(D)



Problem 2. **[2 points]** Find $(g \circ f)(x)$ for $f(x) = 2x - 1$ and $g(x) = x^2$.

$$(g \circ f)(x) = g(f(x))$$
$$= g(2x-1)$$
$$= \boxed{(2x-1)^2}$$