

# Pre-AP Precalculus

## Assignment 1.3 – Composite and Inverse Functions

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For #'s 1-5, Use the following functions.

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

$$g(x) = x + 5$$

$$h(x) = 4x - 6$$

1]  $f(g(x))$

2]  $g(f(x))$

3]  $(f \circ h)(x)$

4]  $(h \circ f)(x)$

5]  $g(h(x))$

6] The function  $c(f) = \frac{5}{9}(f - 32)$  converts a temperature  $f$  in degrees Fahrenheit to degrees Celsius. The function  $k(c) = c + 273$  converts a temperature  $c$  in degrees Celsius to units called kelvins.

Write a function that can be used to convert from a temperature in degrees Fahrenheit to degrees Celsius in Kelvins.

7] Given that  $r(s(t)) = 2t - 5$ , which could be functions  $r(t)$  and  $s(t)$  ?

For #'s 8-10, Use the following functions.

$$f(x) = 1 - x^2$$

$$g(x) = 5 - x$$

8]  $f(g(x))$

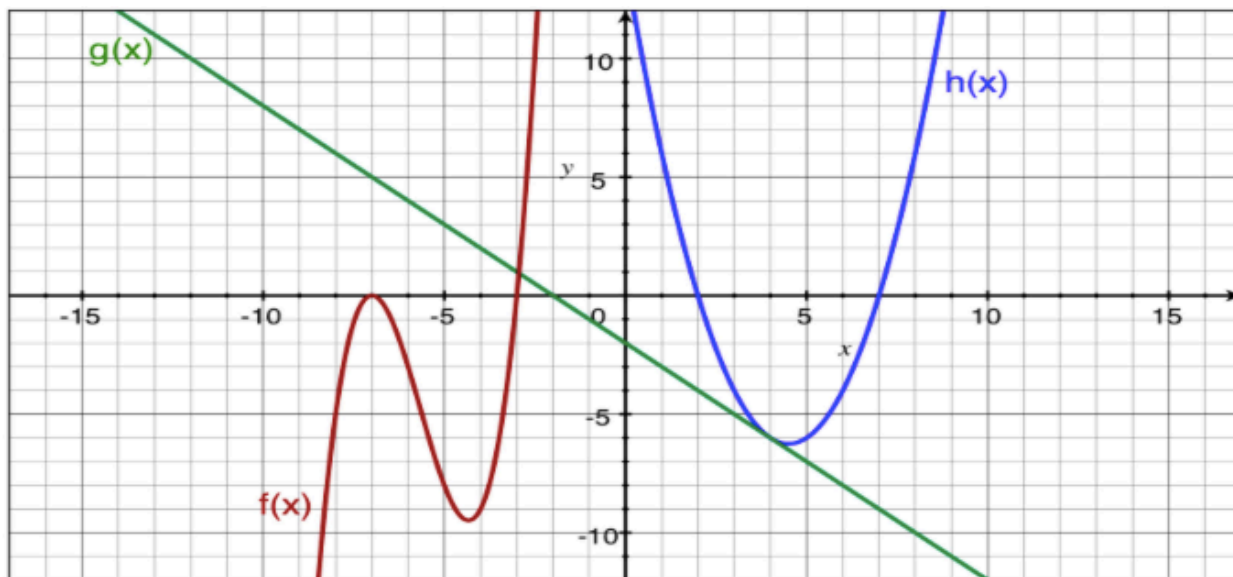
9]  $(g \circ f)(x)$

10]  $g(f(-2))$

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For #'s 11-13, Use the graph below.



11]  $h(g(-7))$

12]  $g(f(-3))$

13]  $h(h(8))$

For #'s 14-20, find the inverse of each function.

14]  $f(x) = \frac{2}{x-1} + 3$

15]  $f(x) = \frac{1-x}{5}$

16]  $f(x) = x^2 - 6x - 2$

17]  $f(x) = 1 + \frac{3}{2}x$

18]  $f(x) = (x - 2)^3 + 1$

19]  $f(x) = \sqrt[3]{x} - 5$

20]  $f(x) = 5x^2 + 10x + 1$