

NAME: \_\_\_\_\_

1. If  $P(h) = h^2 + h + 2$  and  $Q(h) = h + 5$ , find  $P(h) + Q(h)$ .

[A]  $h^2 - 3$  [B]  $h^2 + 2h - 3$

[C]  $h^2 + 2h + 7$  [D]  $h^2 + h + 7$

2. If  $S(s) = s^2 + s + 1$  and  $T(s) = s - 5$ , find  $S(s) + T(s)$ .

3. If  $S(w) = w^2 - w + 5$  and  $T(w) = w - 3$ , find  $S(w) + T(w)$ .

4. Let  $f(x) = 1 - x^2$ ,  $g(x) = 1 - x$ . Find  $(fg)(x)$ .

[A]  $x^3 - x^2 - x + 1$  [B]  $x^3 + 2x^2 + 2$

[C]  $-x^2 - x + 2$  [D]  $-x^2 + x$

5. Let  $f(x) = 4 - x^2$ ,  $g(x) = 2 - x$ . Find  $(fg)(x)$ .

[A]  $x^3 + 6x^2 + 2x - 2$

[B]  $x^3 - 2x^2 - 4x + 8$

[C]  $-x^2 + x + 2$  [D]  $-x^2 - x + 6$

6. Compare the quantity in Column A with the quantity in Column B.

$f(x) = 3 - x^2$ ,  $g(x) = 2x^2 - 4x + 7$

Column A      Column B

$f(x)$                $g(x)$

[A] The quantity in Column A is greater.

[B] The quantity in Column B is greater.

[C] The two quantities are equal.

[D] The relationship cannot be determined on the basis of the information supplied.

7. Given  $f(x) = 1 - x^2$  and  $(f + g)(x) = -x^2 - x + 2$ , find the function  $g$ .

[A]  $g(x) = 2x^2 + 2$  [B]  $g(x) = x$

[C]  $g(x) = -x - 1$  [D] none of these

8. Write a function rule for which  $f(-5) = 2$ .

9. A computer design uses a function  $f(x)$  to make green lines. What function will make the lines move to the left 3 units?

10. For which value of  $x$  is  $f(x) = -10$  if  $f(x) = -4x^2 + 3x$ ?

[A]  $-1$  [B]  $4$  [C]  $3$  [D]  $-2$  [E]  $2$

[1] C

[2]  $s^2 + 2s - 4$

[3]  $w^2 + 2$

[4] A

[5] B

[6] B

[7] D

[8] Answers will vary. Sample:  $f(x) = x + 7$

[9]  $f(x + 3)$

[10] E