

Evaluating Functions Homework

1. If $f(x) = x^2 - 3x + 1$ and $g(x) = x + 2$ find:

A. $f(4a)$

$$16a^2 - 12a + 1$$

B. $g(a^2 - 1)$

$$a^2 - 1 + 2 = a^2 + 1$$

Given $f(x) = 2x^2 + 4x - 6$ and $g(x) = 2x - 2$, find each value.

2. $(f+g)(2)$

$$f(2) = 8 + 8 - 6 = 10$$

$$g(2) = 2$$

$$12$$

3. $(f-g)(-4)$

$$f(-4) = 32 + 16 - 6 = 42$$

$$g(-4) = -10$$

$$20$$

4. $(f \cdot g)(-1)$

$$f(-1) = 2 - 4 - 6 = -8$$

$$g(-1) = -4$$

$$32$$

Given $f(x) = 2x^2 + 4x - 6$ and $g(x) = 2x - 2$, find each value.

5. $(f+g)(x)$

$$2x^2 + 6x - 8$$

6. $(f-g)(x)$

$$2x^2 + 2x - 4$$

$$-6 + 12$$

7. $(f \cdot g)(x)$

$$(2x^2 + 4x - 6)(2x - 2)$$

$$4x^3 - 4x^2 + 8x^2 - 8x - 12x + 12$$

8. $(\frac{f}{g})(x)$

$$2(x^2 + 2x - 3) = \frac{2(x+3)(x-1)}{2(x-1)} = x+3$$

$$\text{OR } \frac{2x^2 + 4x - 6}{2x - 2}$$

Use the tables to find each value

$$4x^3 + 4x^2 - 20x + 12$$

x	3	4	5	6	7
f(x)	0	2	4	6	8

x	1	2	3	4	5
g(x)	1	0	1	4	9

20. $(f+g)(4)$ $f(4) + g(4)$
 $2 + 4 = 6$

21. $(\frac{g}{f})(5)$ $\frac{g(5)}{f(5)}$ $\frac{9}{4}$

23. $(g-f)(5)$ $g(5) - f(5)$
 $9 - 4 = 5$

24. $(fg)(3)$ $f(3) \cdot g(3)$
 $0 \cdot 1 = 0$

25. If $p(x) = -2x^2 - 5x + 1$ and $r(x) = 1 + 3x$, find each value.

a) $2p(x) = -4x^2 - 10x + 2$

b) $p(-3m) = -2(9m^2) + 15m + 1 = -18m^2 + 15m + 1$

c) $-3r(a-5) = -3(1+3(a-5)) = -3(1+3a-15) = -3(-14+3a) = \boxed{42-9a}$

d) $r(2a) = \boxed{1+6a}$

e) $p(2m-1) = -2(4m^2-4m+1) - 5(2m-1) + 1 = -8m^2 + 8m - 2 - 10m + 5 + 1 = \boxed{-8m^2 - 2m + 4}$

f) $r(9w-13) = 1 + 27w - 39 = \boxed{27w - 38}$

g) $p(-4) = -2(16) + 20 + 1 = -32 + 20 + 1 = \boxed{-11}$

h) $p(3g-7) = -2(9g^2-42g+49) - 5(3g-7) + 1 = -18g^2 + 84g - 98 - 15g + 35 + 1 = \boxed{-18g^2 + 69g - 62}$

i) $p(5x+4) = -2(25x^2+40x+16) - 5(5x+4) + 1 = -50x^2 - 80x - 32 - 25x - 20 + 1 = \boxed{-50x^2 - 105x - 51}$