

Function Notation and Operations Worksheet

Use the functions below to answer the given questions:

$f(x) = 3x - 4$

$g(x) = 2x^2 + 5$

$h(x) = 8 - 3x$

$p(x) = x^2 - 2x$

FUNCTION NOTATION:

1)  $f(-3)$

4)  $g(-1)$

7)  $p(5)$

2)  $f(6)$

5)  $g(4)$

8)  $h(-2)$

3)  $f(x + 2)$

6)  $p(-2)$

9)  $h(5x - 3)$



Warm-up

FUNCTION OPERATIONS:

10)  $(h + g)(3)$

$$\begin{array}{r} h(3) + g(3) \\ 8 - 3(3) \quad 2(3)^2 + 5 \\ -1 \quad + \quad 23 \\ \hline 22 \end{array}$$

12)  $(f \cdot g)(2)$

$$\begin{array}{r} f(2) \cdot g(2) \\ 3(2) - 4 \quad 2(2)^2 + 5 \\ 2 \quad 13 \\ \hline 26 \end{array}$$

11)  $(f - p)(-1)$

$$\begin{array}{r} f(-1) - p(-1) \\ 3(-1) - 4 \quad (-1)^2 - 2(-1) \\ -7 \quad - \quad 3 \\ \hline -10 \end{array}$$

13)  $(h \cdot p)(5)$

$$\begin{array}{r} h(5) \cdot p(5) \\ 8 - 3(5) \quad (5)^2 - 2(5) \\ -7 \quad 15 \\ \hline -105 \end{array}$$

14)  $\left(\frac{f}{p}\right)(-1)$

$$\frac{f(-1)}{p(-1)} = \frac{3(-1)-4}{(-1)^2-2(-1)} = \frac{-7}{3}$$

15)  $\left(\frac{g}{h}\right)(0)$

$$\frac{g(0)}{h(0)} = \frac{2(0)^2+5}{8-3(0)} = \frac{5}{8}$$

16)  $(p+g)(x)$

$$p(x)+g(x)$$

$$(x^2-2x)+(2x^2+5)$$

$$3x^2-2x+5$$

17)  $(f-h)(x)$

$$f(x)-h(x)$$

$$(3x-4)-(\cancel{8}-3x)$$

$$3x-4-8+3x$$

$$6x-12$$

18)  $(f \cdot h)(x)$

$$f(x) \cdot h(x)$$

$$(3x-4)(8-3x)$$

	$3x$	$-4$
$8$	$24x$	$-32$
$-3x$	$-9x^2$	$+12x$

$$-9x^2+36x-32$$

19)  $(g \cdot p)(x)$

$$g(x) \cdot p(x)$$

$$(2x^2+5) \cdot (x^2-2x)$$

	$2x^2$	$+5$
$x^2$	$2x^4$	$5x^2$
$-2x$	$-4x^3$	$-10x$

$$2x^4-4x^3+5x^2-10x$$