No. : Exercise 1 Date. :

$f(x) = x^2 - 5$

1. $f(5) = 5^2 - 5$
$= 25 - 5$
$= 20$

2. $f(c+1) = (c+1)^2 - 5$
$= c^2 + 2c + 1 - 5$
$= c^2 + 2c - 4$

3. $f(k^3) = (k^3)^2 - 5$
$= k^6 - 5$

4. $f(x+h) = (x+h)^2 - 5$
$= x^2 + 2xh + h^2 - 5$

Exercise 2

1. $f(x) = x^2 + 3$ $\quad df : \{x \mid x \geq \sqrt{3}, x \in R\}$
$x^2 + 3 \geq 0$
$x^2 \geq -3$
$x \geq \sqrt{3}$

2. $g(x) = 1/(x-2)$ $\quad Df : \{x \mid x \neq 2, x \in R\}$
$x - 2 \neq 0$
$x \neq 2$

No.: Date.:

3. $h(x) = \sqrt{1+5x}$ Df : $\{x \mid x \geq -1/5, x \in R\}$

$\sqrt{1+5x} \geq 0$

$1+5x \geq 0$

$x \geq -1/5$

Exercise 5

$f(x) = x^2 + 1$ $g(x) = x + 1$

1. $fog(2) = (x+1)^2 + 1$
$= x^2 + 2x + 1 + 1$
$= x^2 + 2x + 2$
$= 2^2 + 2 \cdot 2 + 2$
$= 10$

2. $fog(x) = x^2 + 2x + 2$

3. $fog(a^2) = x^2 + 2x + 2$
$= a^4 + 2a^2 + 2$

4. $gof(2) = (x^2+1) + 1$
$= 4 + 1 + 1$
$= 6$

5. $gof(x) = (x^2+1) + 1$
$= x^2 + 2$

6. $gof(\sqrt{a}) = (x^2+1) + 1$
$= \sqrt{a}^2 + 2 \Rightarrow a + 2$