

### 4.3 – FUNCTIONS #2

1. Find domain and range of the relation, then determine if the relation is a function. If it is not, tell why.

$(-8, 4), (-2, 0), (1, -6), (1, 4), (7, -6)$

Domain:  $\{-8, -2, 1, 7\}$

Range:  $\{4, 0, -6\}$

Function: **No - the x-values repeat**

If  $f(x) = x^2 + 4x$  and  $g(x) = 5 - 3x$ , find the following.

$$\begin{aligned} 2. f(-3) &= (-3)^2 + 4(-3) & 3. g(-5) &= 5 - 3(-5) \\ &= 9 - 12 & &= 5 + 15 \\ &= -3 & &= 20 \end{aligned}$$

$$\begin{aligned} 4. f(1) + g(3) &= 5 - 4 = 1 & 5. f(-2) - g(4) &= -4 - (-7) = 3 \\ f(1) &= (1)^2 + 4(1) & f(-2) &= (-2)^2 + 4(-2) \\ &= 1 + 4 = 5 & &= 4 - 8 = -4 \\ g(3) &= 5 - 3(3) & g(4) &= 5 - 3(4) \\ &= 5 - 9 = -4 & &= 5 - 12 = -7 \end{aligned}$$

$$\begin{aligned} 6. 2[g(-2)] + 3[f(2)] &= 2(11) + 3(12) = 22 + 36 = 58 \\ g(-2) &= 5 - 3(-2) = 5 + 6 = 11 \\ f(2) &= (2)^2 + 4(2) = 4 + 8 = 12 \end{aligned}$$

Use the graph to answer the following.

List the points.

$\{(-3, 4), (-2, -5), (0, 7), (2, 0), (4, 2), (4, -6), (9, 5)\}$

Domain:

$\{-3, -2, 0, 2, 4, 9\}$

Range:

$\{4, -5, 7, 0, 2, -6, 5\}$

Function? **No** What would make it a function? **if either  $(4, 2)$  or  $(4, -6)$  were different**

$f(2) = 0$        $f(-3) = 4$

$f(x) = 7, x = 0$        $f(x) = -6, x = 4$

Find the domain and range.

D:  $-6 \leq x < 8$

R:  $-2 < y \leq 6$

