1) $f : R \to R^2$, $g(x,y) = f(xy)$, $g : R^m \to R^n$, per $x, y \in R$.

$[m = 2,\ n = 2]$

2) $f : R^2 \to R^3$, v vettore di R^k fissato, $g(x) = f(x) \cdot v$, $g : R^n \to R^m$.

$[k = 3,\ m = 1,\ n = 2]$

3) a, v vettori di R^4, $f : R^4 \to R^3$, $\phi(t) = f(a + vt)$, $f : R^4 \to R^3$, $\phi : R^m \to R^n$.

$[n = 3,\ m = 1]$

4) $A \in M(3 \times 2)$, $f(x) = Ax$, $f : R^m \to R^n$.

$[m = 2,\ n = 3]$

5) $A \in M(3 \times k)$, $f : R^2 \to R^3$, $g : R^m \to R$, $h(x) = g(Af(x))$, $h : R^s \to R^t$.

$[t = 1,\ s = 2,\ k = 3,\ m = 3]$

6) $g : R^2 \to R^3$, $f(x) = (g(x), x)$, $f : R^m \to R^n$.

$[m = 2,\ n = 5]$

7) $g : R^3 \to R$, $f : R^3 \to R^2$, $h : R^k \to R^2$, $k(x) = h(g(x), f(x))$, $k : R^s \to R^t$.

$[k = 3,\ s = 3,\ t = 2]$

8) $g : R^k \to R$, $f : R^3 \to R^4$, $h(x) = g(|f(x)|)$, $h : R^s \to R^t$.

$[t = 1,\ k = 1,\ s = 3]$

9) $f : R \to R^3$, $A \in M(3 \times 3)$, $h(t) =^T f(t)Af(t)$, $h : R^m \to R^n$.

$[m = 1,\ n = 1]$

10) $\phi \in C(R, R)$,

$$f(x,y) = \int_x^y \phi(t)dt$$

$f : R^m \to R^n$.

$[m = 2,\ n = 1]$

11) $f : R^m \to R$, $g : R^3 \to R^2$, $v \in R^n$,

$$h(x) = f(|g(x)|, x \cdot v)$$

$h : R^s \to R^t$.

$[m = 2,\ t = 1,\ s = 3,\ n = 3]$

12) $f : R^2 \to R^3$, $v \in R^m$, $g(x) = f(x \cdot v)$.

[impossibile]

13) $f : R^2 \to R$, $v \in R^m$, $g : R \to R$, $h(x) = g(f(x) \cdot v)$, $h : R^s \to R^t$

[infiniti valori di (m, n, s, t) sono accettabili: $m = n$, $s = 2$, $t = 1$]

14) $A \in M(k \times 3)$, $b \in R^m$, $f : R^s \to R^t$, $g(x) = Af(x) + b$, $g : R^3 \to R^2$.

$[s = 3,\ t = 3,\ k = 2,\ m = 2]$

15) $f : R^2 \to R$, $g : R^2 \to R$, $v(x,y,z) = (f(x,y), g(y,z) + x)$, $v : R^n \to R^m$.

$[m = 2,\ n = 3]$

16) $f : R^3 \to R^m$, $g : R^3 \to R^n$, $g(x) \geq f(x)$ per ogni $x \in R^3$.

$[m = n = 1]$