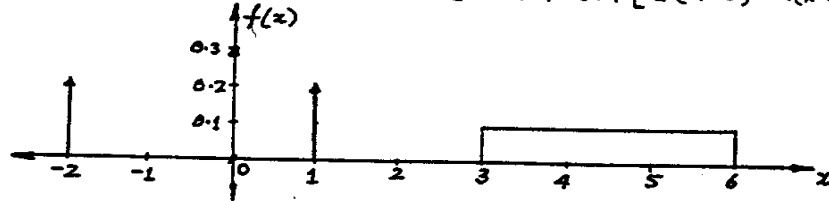


## HW#2 Solutions

$$1.21 \quad P[X \leq a] = \int_{-\infty}^{a^+} f(x) dx$$

$$f(x) = 0.2 \delta(x+2) + 0.3 \delta(x) + 0.2 \delta(x-1) + 0.1 [u(x-3) - u(x-6)]$$



$$(a) \quad P[X \leq -3] = \int_{-\infty}^{-3} f(x) dx = 0$$

$$(b) \quad P[X \leq 1.5] = \int_{-\infty}^{1.5} f(x) dx = \int_{-\infty}^{1.5} [0.2 \delta(x+2) + 0.3 \delta(x) + 0.2 \delta(x-1)] dx$$
$$= 0.2 + 0.3 + 0.2 = 0.7$$

$$(c) \quad P[X \leq 4] = \int_{-\infty}^4 f(x) dx$$
$$= 0.2 + 0.3 + 0.2 + 0.1 \int_3^4 dx$$
$$= 0.2 + 0.3 + 0.2 + 0.1 = 0.8$$

$$(d) \quad P[X \leq 6] = \int_{-\infty}^6 f(x) dx$$
$$= 0.2 + 0.3 + 0.2 + 0.1 \int_3^6 dx$$
$$= 0.2 + 0.3 + 0.2 + 0.3 = 1$$

2.1 c, d, f ---- Please refer to HW#1 solutions.