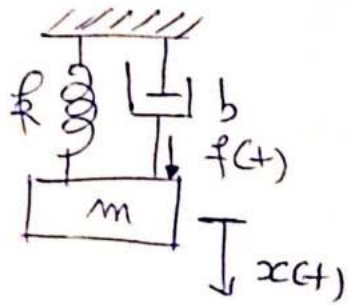


Correction of Example Page 40



$f(t)$ is the input
 $x(t)$ is the output

The equation of motion is:

$$m\ddot{x} + kx + b\dot{x} = f(t)$$

Laplace transform with initial conditions zero

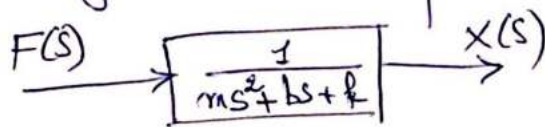
$$ms^2x(s) + bsx(s) + kx(s) = F(s)$$

$$\Rightarrow (ms^2 + bs + k)x(s) = F(s)$$

\Rightarrow TF = transfer function

$$\boxed{TF = \frac{x(s)}{F(s)} = \frac{1}{ms^2 + bs + k}}$$

The block diagram that represents the system is:



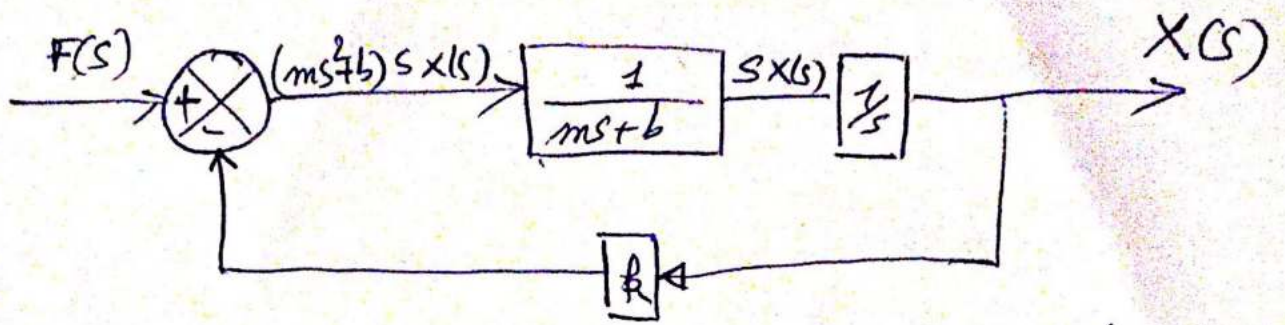
from the TF, we can write.

$$F(s) = x(s)[ms^2 + bs] + x(s)k$$

$$F(s) - kx(s) = x(s)[ms^2 + bs]$$

$$= x(s)s(ms + b)$$

So, the block diagram, can be also presented as follow.



We can also detail the block diagram as follow.

