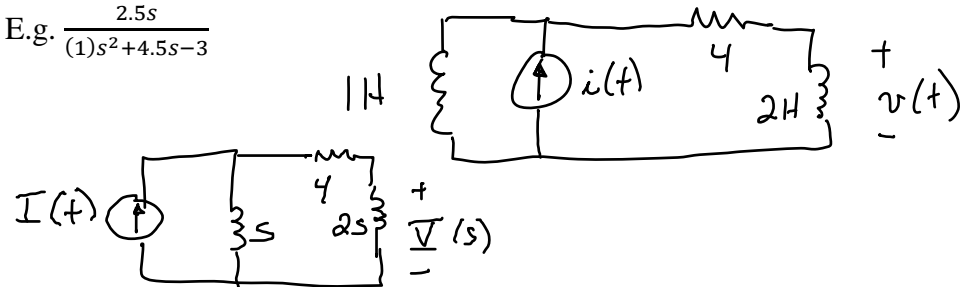CP 1   Find $H(s) = \frac{V(s)}{I(s)}$ of the circuit below. Write it as a ratio of polynomials in standard form. That means, in the denominator, the coefficient of s of the highest power is 1.

E.g. $\frac{2.5s}{(1)s^2 + 4.5s - 3}$

$sI(s)$ ... $V(s) = I(s) \cdot s \cdot \frac{2s}{3s+4}$ by $V_{divider}$

$$\frac{V(s)}{I(s)} = \frac{2s^2}{3s+4} = \boxed{\frac{\frac{2}{3}s^2}{s + \frac{4}{3}}}$$

CP 2   Find the impulse response of the above circuit

Improper fraction:

$s + \frac{4}{3} \overline{\smash{\big)}\, \frac{2}{3}s^2}$ ... $\frac{2}{3}s - \frac{4}{9}$

$H(s) = s + \frac{4}{3} + \frac{\frac{16}{27}}{s + \frac{4}{3}}$

$\frac{2}{3}s^2 + \frac{4}{9}s$

$-\frac{4}{9}s$

$-\frac{4}{9}s - \frac{16}{27}$

$\frac{16}{27}$

$$\boxed{h(t) = \delta'(t) + \frac{4}{3}\delta(t) + \frac{16}{27}e^{-\frac{4}{3}t}u(t)}$$