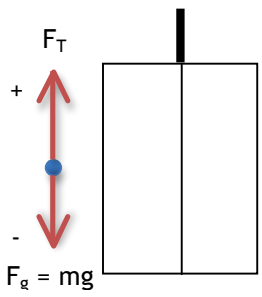
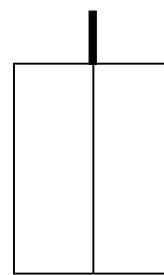
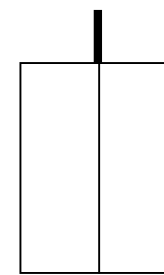
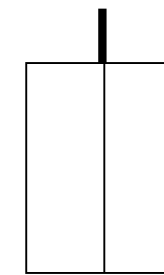


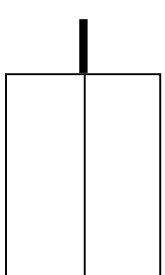
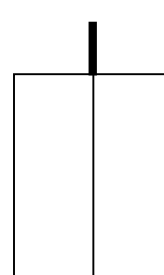
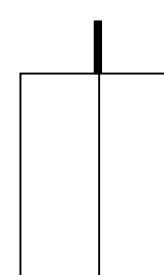
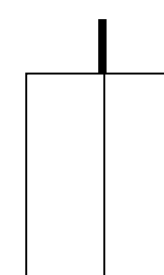
Elevator Problems

$$\Sigma F = ma \quad F_g = mg$$

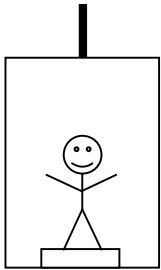
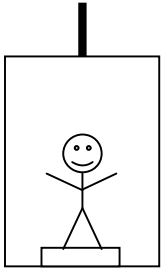
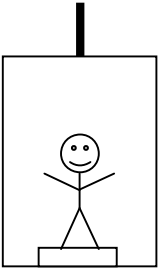
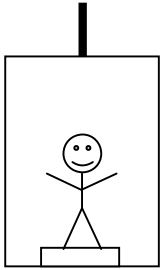
1) Draw the free body diagrams, and determine the force of the cable attached to the elevator in the conditions below. The mass of the elevator is 200 kg.

a=5m/s <sup>2</sup> up	a=5m/s <sup>2</sup> down	constant speed	free fall
 <p> <math>\Sigma F = ma</math>  <math>F_T - F_g = ma</math>  <math>F_T - mg = ma</math>  <math>F_T - (200 \text{ kg})\left(9.8 \frac{\text{m}}{\text{s}^2}\right) = (200 \text{ kg})\left(5 \frac{\text{m}}{\text{s}^2}\right)</math>  <span style="border: 1px solid blue; padding: 2px;"><math>F_T = 2960 \text{ N up}</math></span> </p>			

2) Draw the free body diagrams, and determine the acceleration of the elevator in the conditions below. The mass of the elevator is 500 kg.

F <sub>cable</sub> =6500N up	F <sub>cable</sub> =3500N up	F <sub>cable</sub> =5000N up	F <sub>cable</sub> =0 N
			

3) Draw the free body diagrams, and determine the reading on the scale in the conditions below. The mass of the person is 55 kg.

$a=2\text{m/s}^2$ up	$a=2\text{m/s}^2$ down	constant speed	free fall
			

4) Draw the free body diagrams, and determine the acceleration the guy with the conditions below. The mass of the guy is 40 kg.

$F_N=400\text{N}$ up	$F_N=0\text{ N}$	$F_N=800\text{ N}$	$F_N=200\text{ N}$
