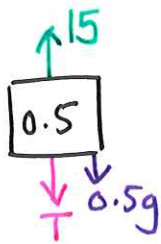
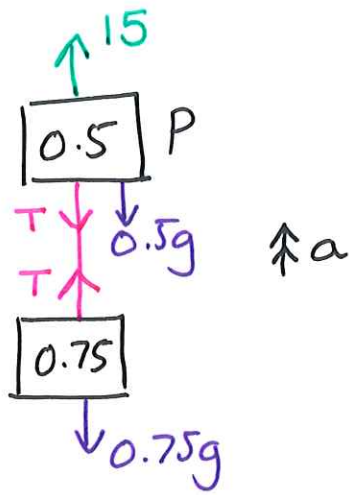
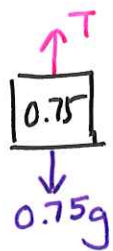


Q1.



$$F = ma$$

$$15 - T - 0.5g = 0.5a$$



$$F = ma$$

$$T - 0.75g = 0.75a$$

$$T = 0.75a + 0.75g$$

sub

$$15 - (0.75a + 0.75g) - 0.5g = 0.5a$$

$$15 - 0.75a - 0.75g - 0.5g = 0.5a$$

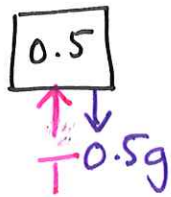
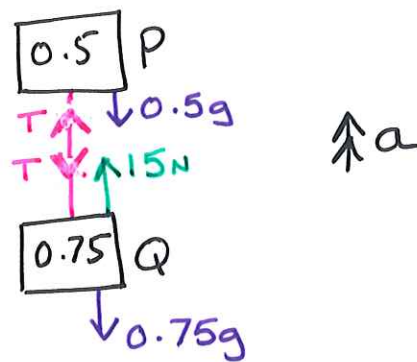
$$15 - 1.25g = 1.25a$$

$$a = 2.2$$

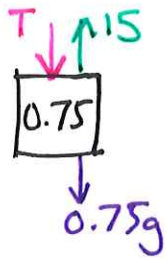
$$T = 0.75(2.2) + 0.75g$$

$$T = \underline{\underline{9\text{ N}}}$$

Q2.



$$F = ma$$
$$T - 0.5g = 0.5a$$



$$F = ma$$
$$15 - T - 0.75g = 0.75a$$

$$T = 0.5a + 0.5g$$

sub

$$15 - (0.5a + 0.5g) - 0.75g = 0.75a$$

$$15 - 0.5a - 0.5g - 0.75g = 0.75a$$

$$15 - 1.25g = 1.25a$$

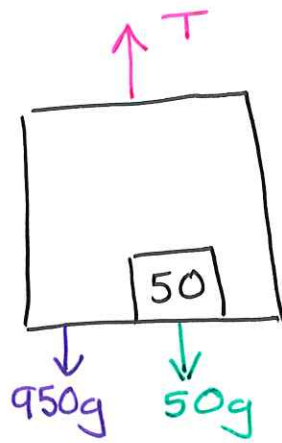
$$2.75 = 1.25a$$

$$a = 2.2$$

$$T = 0.5(2.2) + 0.5(9.8)$$

$$T = \underline{\underline{6N}}$$

Q3.



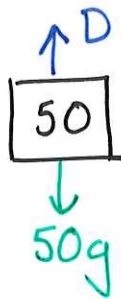
$$\uparrow a = -2$$

a) $F = ma$

$$T - 1000g = 1000(-2)$$

$$T = \underline{\underline{7800\text{ N}}}$$

b)



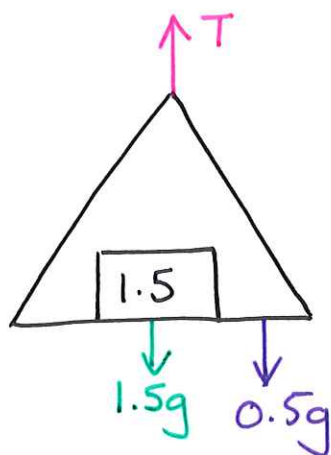
$$F = ma$$

$$D - 50g = 50(-2)$$

$$D = 390$$

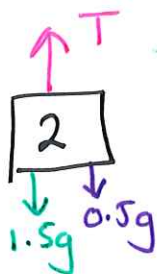
Force exerted on the women
is 390 N

Q4.



$$\uparrow a = 0.5$$

a) overall



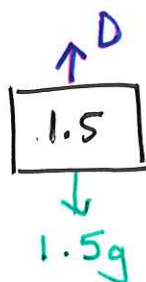
$$F = ma$$

$$T - 2g = 2(0.5)$$

$$T = 1 + 2g$$

$$T = \underline{\underline{20.6 \text{ N}}}$$

b)



$$F = ma$$

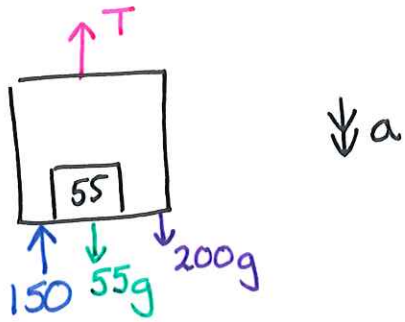
$$D - 1.5g = 1.5(0.5)$$

$$D = 15.5$$

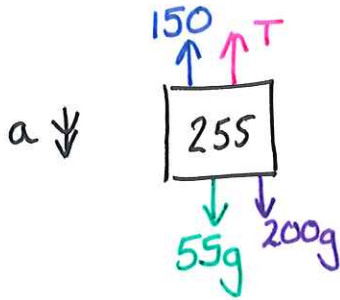
Force exerted on scale pan
is 15.5 N

Q5.

a)



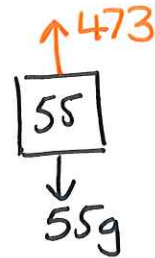
Overall



$$F = ma$$

$$255g - 150 - T = 255a$$

Crate



$$F = ma$$

$$55g - 473 = 55a$$

$$a = \underline{\underline{1.2 \text{ ms}^{-2}}}$$

b)

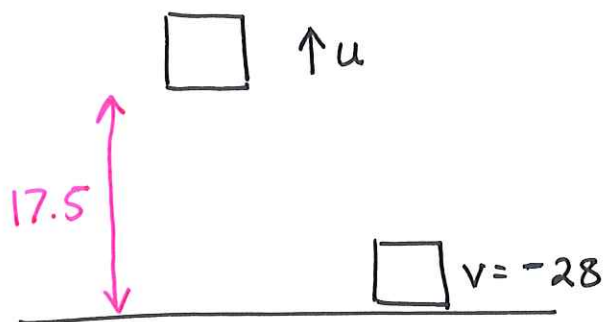


$$255g - 150 - T = 255(1.2)$$

$$T = 2043 \text{ N}$$

Force exerted on the lift
is 2043

Q6.



a)

$$s = -17.5$$

$$v^2 = u^2 + 2as$$

$$u$$

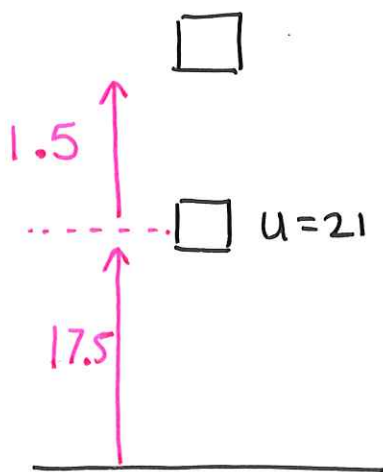
$$v = -28$$

$$a = -9.8$$

$$u = 21$$

$$t$$

b)



$$s = 1.5$$

$$u = 21$$

$$v$$

$$a = -9.8$$

$$t$$

$$s = ut + \frac{1}{2}at^2$$

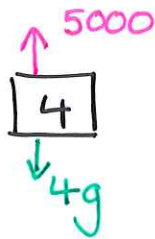
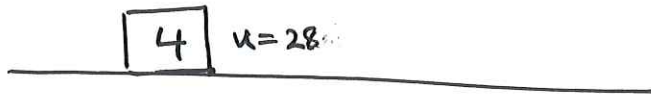
$$1.5 = 21(t) + \frac{1}{2}(-9.8)t^2$$

$$0 = 4.9t^2 - 21t + 1.5$$

$$t = 2.99 \quad t = 1.3$$

Q6.

C



$$F = ma$$

$$4g - 5000 = 4a$$

$$a = -1240.2$$

S

$$u = -28$$

$$v = 0$$

$$a = -1240.2$$

t

$$v^2 = u^2 + 2as$$

$$0 = (-28)^2 + 2(-1240.2)s$$

$$s = \underline{\underline{0.316}}$$