## Lift Questions: RF = ma

In each case a person is in a lift. You will be asked various questions depending on the motion of the lift.

1. Mass of lift is 800kg. Mass of person is 80kg. The lift is at the bottom of the shaft and begins to accelerate upwards at 1m/s<sup>2</sup>. Calculate

a) the tension in the lift cable

b) the reaction between the floor of the lift and the person.

2. Mass of lift is 2000kg. Mass of person is 100kg. The lift is at the bottom of the shaft and begins to accelerate upwards at 2m/s<sup>2</sup>. Calculate

a) the tension in the lift cable

b) the reaction between the floor of the lift and the person.

3. Mass of lift is 1200kg. Mass of person is 90kg. The lift is at the top of the shaft and begins to accelerate downwards at 1m/s<sup>2</sup>. Calculate

a) the tension in the lift cable

b) the weight of the person.

4. Mass of lift is 800kg. Mass of person is 80kg. The lift is at the bottom of the shaft and begins to accelerate upwards at 1m/s<sup>2</sup>. Calculate

a) the tension in the lift cable

b) the weight of the person.

5. Mass of lift is 3500kg. Mass of persons is 70kg. The lift is at the bottom of the shaft and begins to accelerate upwards at  $1m/s^2$ . Calculate

a) the tension in the lift cable

b) the weight of the person.

6. Mass of lift is 900kg. Mass of person is 90kg. The lift is at the bottom of the shaft and begins to accelerate upwards at 1m/s<sup>2</sup>. Calculate

a) the tension in the lift cable

b) the reaction between the floor of the lift and the person.

7. Mass of lift is 800kg. Mass of person is 75kg. The lift is travelling upwards at a constant 3m/s. Calculate

- a) the tension in the lift cable
- b) the weight of the person.

8. Mass of lift is 5000kg. Mass of person is 80kg. The lift is at the bottom of the shaft and begins to accelerate upwards at  $1m/s^2$ . Calculate

- a) the tension in the lift cable
- b) the reaction between the floor of the lift and the person.

9. Mass of lift is 780kg. Mass of person is 120kg. The lift is travelling downwards at a constant 2m/s. Calculate

- a) the tension in the lift cable
- b) the weight of the person.