**SC20F Newton’s 2nd Law (F=ma) Name:**

1. How much force is needed to make a 0.5kg toy car accelerate at 2m/s2?
2. Nick is pushing his stalled car with a force of 150N, causing it to accelerate at 0.2m/s2. What is the mass of his car?
3. You are driving along in your car, when suddenly a “walker” jumps out in front of you. You slam on the brakes going from 50kn/hr to 0km/hr in 2s.
	1. What is your acceleration?
	2. If the mass of your car is 1200kg, what force was needed by your brakes to stop the car?
4. The boys and girls in a science 20F class are having a tug of war. The girls are easily winning! They are pulling with a force of 7500N to the right, and the boys are pulling with a force of 6750N to the left. If the total mass of all the boys and girls is 1200kg, what is the acceleration?
5. Draw a simple diagram showing the major forces acting on a car when it:
	1. Stops at a red light.
	2. Is accelerating after the light turns green.
	3. Is driving at a steady pace.
	4. Is going downhill while applying the brakes.
6. What is Newton’s second law? Write the formula and explain it in words.
7. The ticker tape dots below show an object that is accelerating



 Draw what the dots would look like if :

 a. The object was heavier

 b. A bigger force was applied.