Solutions to Lesson 4

1. p=mv
2. p=mv
3. Both involve a velocity change over an equal time period. We need to figure out which was the greater Δv.
   - ➢ In case a, Δv=8. In case b, Δv=4. ∴ case a has the largest acceleration, momentum and impulse.
4. Again, we need to find the largest Δv. Both cases have roughly the same v_0. Case a has a slower velocity than case b. ∴ case b has the greatest a,p, and I.
5.

	Force	Time	Impulse	Δp	m	Δv
1	-4,000	0.010	-40	-40	10	-4
2	-400	0.100	-40	-40	10	-4
3	-20,000	0.010	-200	-200	50	-4
4	-20,000	0.010	-200	-200	25	-8
5	-200	1.0	-200	-200	50	-4

   - ➢ Hint, for those of you that actually checked this page, I am not wondering whether or not to put a chart like this on the test, I am only wondering how many marks it will be out of!

6. They're the same.
7. Balloon B went faster in the same amount of time. It's Δv was the biggest and as well as its Δa.
8. If you start at 5m/s and end at -4m/s that is a larger Δv than if you ended at 0m/s.
9.

$$\Delta p = m\Delta v$$

$$= 50(0-35) = Ft$$

$$-1750 = F(.5)$$

$$F = 3.5KN$$

10. 875KN
11. 8Ns
12. 1Ns