Impulse/Momentum Theorem Classwork 1/12/15



Rank the objects in order of increasing momentum:



Object A : m = 30 kg; v = 3 m/s



Object B: m = 40 kg; v = 5 m/s



Object C: m = 300 kg; v = 2 m/s



Object D: m = 10 kg; v = 5 m/s



Object E: m = 20 kg; v = 7 m/s



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6) A force of 6.0 N acts on a 4.0 kg object for 10.0 s. What is the object’s change in momentum?



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| Formula: | Plug in numbers: | Answer: |



7) What force is needed to stop a 1,200 kg car in 20.0s if the car is moving at 22.0 m/s?



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| Formula: | Plug in numbers: | Answer: |



8) A snowmobile has a mass of 250 kg. A constant force acts on it for a certain amount of time. The snowmobile’s initial speed is 6.0 m/s and its final speed is 28.0 m/s. What is the snowmobile’s change in momentum?



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| Formula: | Plug in numbers: | Answer: |



9) In #8, what is the force acting on the snowmobile if the force is acting on it for 65.0s?



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| Formula: | Plug in numbers: | Answer: |



Use the following information to answer #10 - #13:

A car weighing 15,680N and moving at 20.0 m/s is acted upon by the brakes. The brakes apply a 650N force until the car is slowed to a speed of 5.0 m/s.



10) What is the car’s mass? (Hint: Fw = mg)

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| --- | --- | --- |
| Formula: | Plug in numbers: | Answer: |



11) What is the car’s initial momentum?



|  |  |  |
| --- | --- | --- |
| Formula: | Plug in numbers: | Answer: |

12) What is the car’s change in momentum?

|  |  |  |
| --- | --- | --- |
| Formula: | Plug in numbers: | Answer: |



13) How much time is required for the brakes to slow the car?

|  |  |  |
| --- | --- | --- |
| Formula: | Plug in numbers: | Answer: |