

REVIEW

**8 SECTION 8.3**

# Newton's Laws of Motion

1. **Identify** which of Newton's three laws of motion specifically applies in each of the following situations:
  - \_\_\_\_\_ a. You feel a force against the sole of your foot as you take a step forward.
  - \_\_\_\_\_ b. A meteor moving in a straight path changes direction when it flies by Earth.
  - \_\_\_\_\_ c. A full grocery cart that is pushed starts moving and increases speed, but the same push increases its speed even more when the cart is empty.
  - \_\_\_\_\_ d. A skateboard moves faster in the same direction it is pushed.
  
2. **Calculate** the acceleration of a 82 kg couch that is pushed across the floor with an unbalanced force of 21 N.  
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3. **Explain** why free-fall acceleration can be regarded as a constant for objects falling within a few hundred meters of Earth's surface.  
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4. **Apply** Newton's first and second laws to explain why an object moving in a circular path at a constant speed is undergoing acceleration and has a force exerted on it.  
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5. **Apply** Newton's third law of motion to explain how two billiard balls moving toward each other at the same speed collide and move away from each other at the same speed as before.  
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