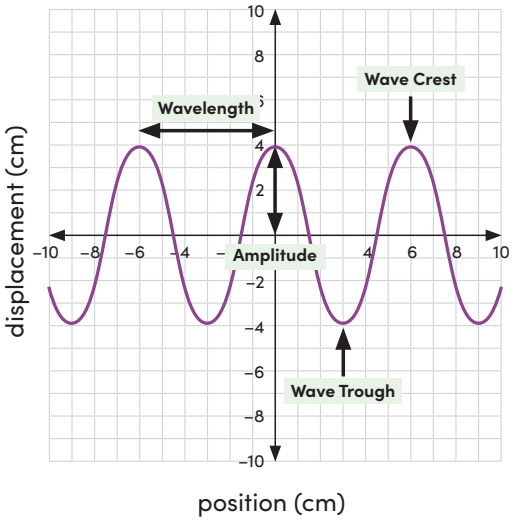
Characteristics of Waves: Part 2

Waves are patterns of motion that carry energy from one place to another. Some examples of waves include sound waves, water waves, and light waves. A simple wave has a repeating pattern with a specific wavelength, frequency, and amplitude.

The **energy** of a wave is directly related to its amplitude and its frequency:

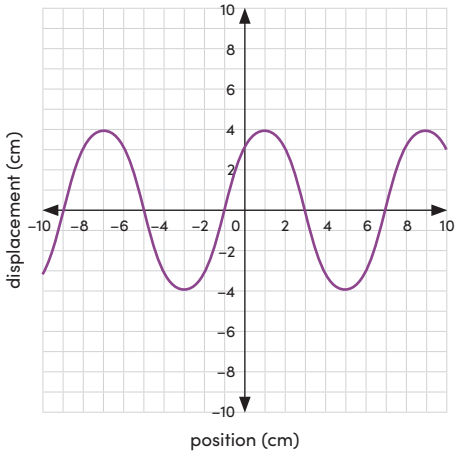
- **The greater the amplitude of a wave, the more energy it has.** For example, if the height of a sound wave increases, each wave will have more energy (and the sound will be louder).
- **The greater the frequency of a wave, the more energy it has.** For example, if you move the end of a jump rope up and down, a wave is produced. To increase the frequency, you have to move the rope more rapidly, which requires you to exert more energy.



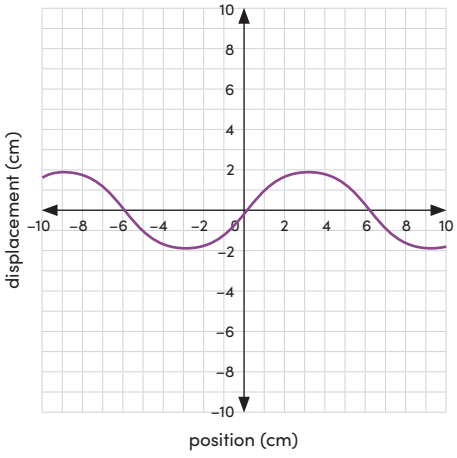
Show what you know about waves by answering the questions below. You can assume that the waves in each set are traveling at the same speed.

1.

Wave A



Wave B



Which wave has more energy? Explain why.

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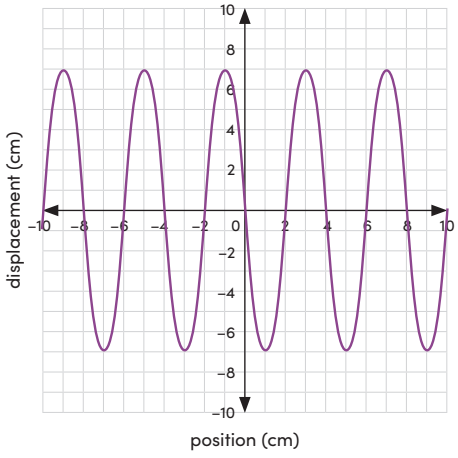
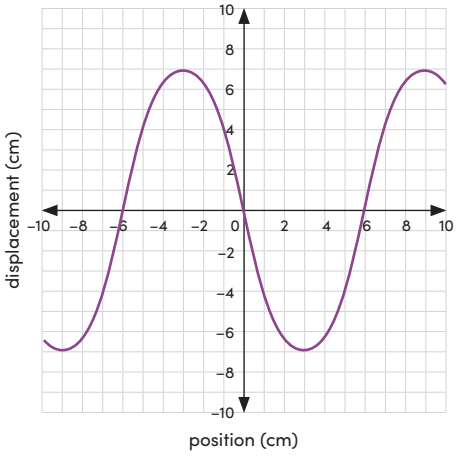
2.

Wave C



Wave D



Which wave has more energy? Explain why.

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Characteristics of Waves: Part 2

Keep going! Answer the questions below. You can assume that the waves in each set are traveling at the same speed.

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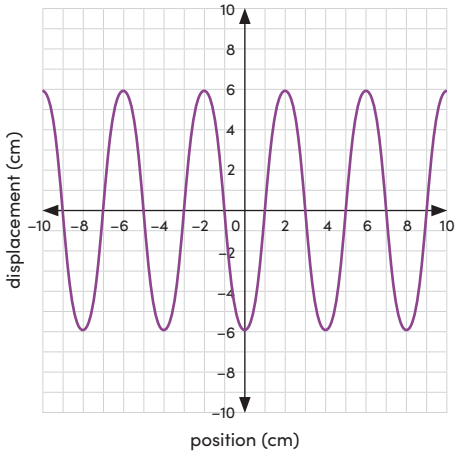
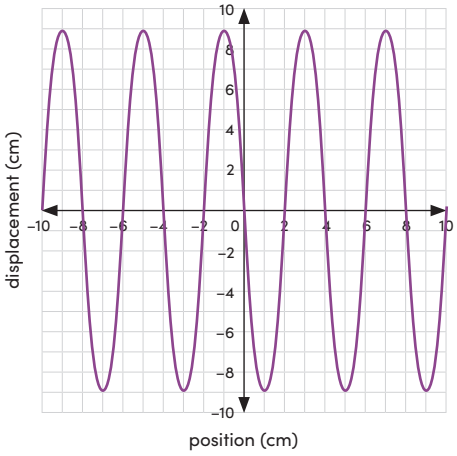
Wave E



Wave F



Which wave has more energy? Explain why.

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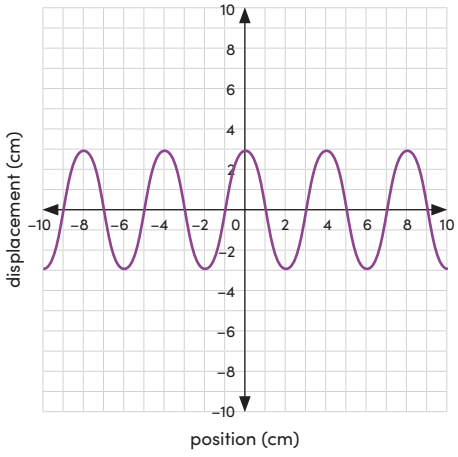
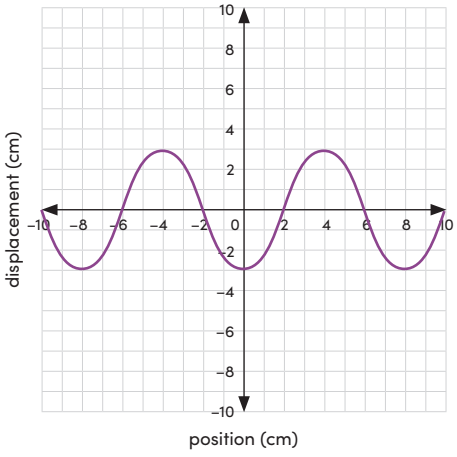
4.

Wave G



Wave H



Which wave has more energy? Explain why.

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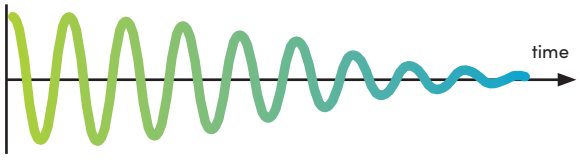
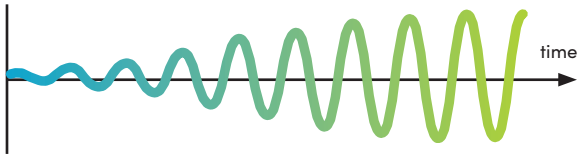
5.

The more energy a sound wave has, the louder the sound. Look at the two sound waves below.

Wave J



Wave K



Which wave represents the volume being turned up, Wave J or Wave K? Explain.

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