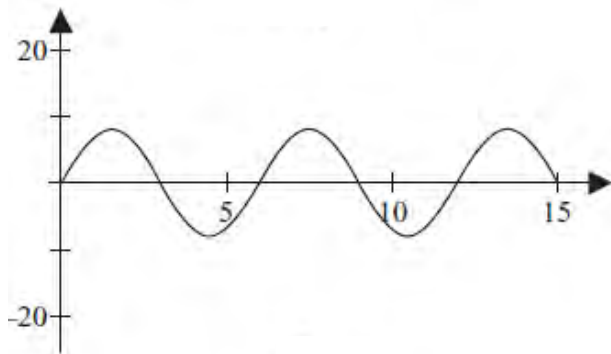


# Astronomy Ranking Task: The Electromagnetic (EM) Spectrum

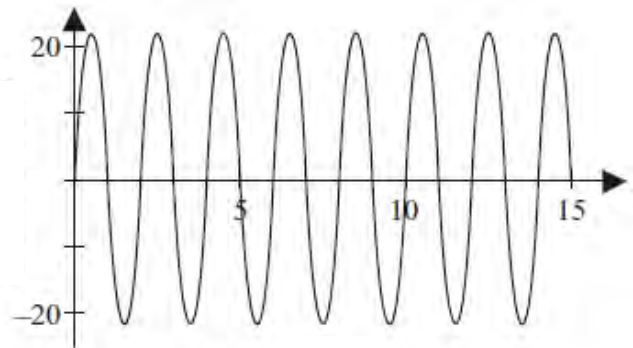
## Exercise #5

**Description:** Below are four electromagnetic waves labeled A through D, shown on axes of arbitrary units.

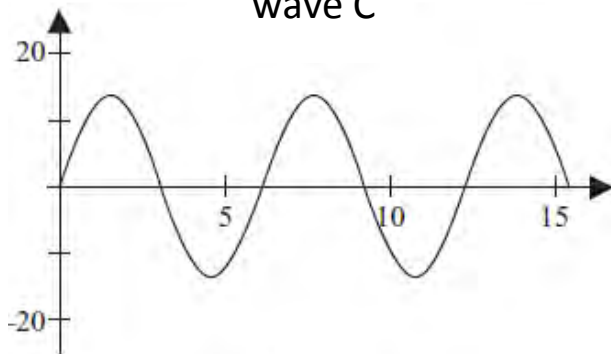
wave A



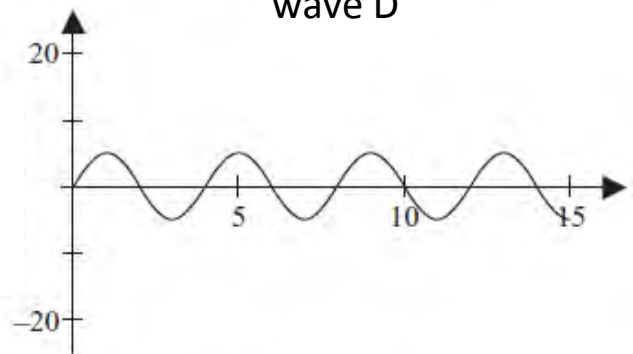
wave B



wave C



wave D



**A. Ranking instructions:** Rank the wavelengths of the electromagnetic waves.

Ranking Order: Shortest 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ Longest

Or, all the waves have the same wavelength. \_\_\_\_\_ (indicate with a check mark)

**Carefully explain** your reasoning for ranking this way:

---

---

---

---

---

**B. Ranking instructions:** Rank the frequencies of the electromagnetic waves.

Ranking Order: Highest 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ Lowest

Or, all the waves have the same frequency. \_\_\_\_\_ (indicate with a check mark)

**Carefully explain** your reasoning for ranking this way:

---

---

---

---

---

**C. Ranking instructions:** Rank the amounts of energy carried by a single photon in each of the waves.

Ranking Order: Lowest 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ Highest

Or, the photons all carry the same amount of energy, regardless of the wave. \_\_\_\_\_ (indicate with a check mark)

**Carefully explain** your reasoning for ranking this way:

---

---

---

---

---

**D. Ranking instructions:** Rank the speeds of the waves.

Ranking Order: Fastest 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ Slowest

Or, all the waves travel at the same speed. \_\_\_\_\_ (indicate with a check mark)

**Carefully explain** your reasoning for ranking this way:

---

---

---

---

---

**E. Ranking instructions:** Rank the periods of the electromagnetic waves.

Ranking Order: Longest 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ Shortest

Or, all the waves have same the period. \_\_\_\_\_ (indicate with a check mark)

**Carefully explain** your reasoning for ranking this way:

---

---

---

---

---

**F. Ranking instructions:** Rank the amplitudes of the waves.

Ranking Order: Highest 1 \_\_\_\_\_ 2 \_\_\_\_\_ 3 \_\_\_\_\_ 4 \_\_\_\_\_ Lowest

Or, the waves all have the same amplitude. \_\_\_\_\_ (indicate with a check mark)

**Carefully explain** your reasoning for ranking this way:

---

---

---

---

---