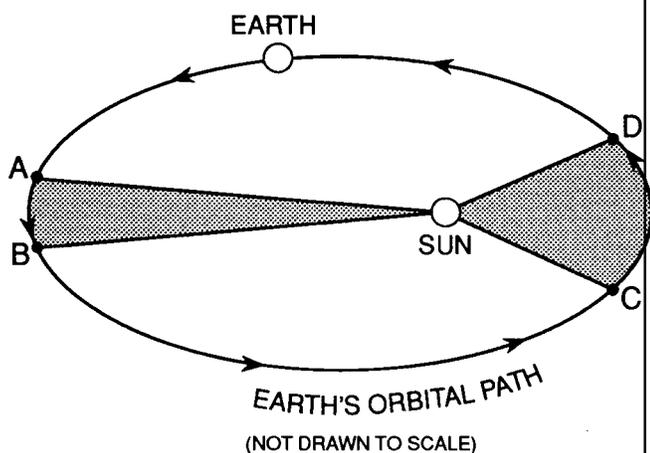


- In the geocentric model (the Earth at the center of the universe), which motion would occur?
  - The Earth would revolve around the Sun.
  - The Earth would rotate on its axis.
  - The Moon would revolve around the Sun.
  - The Sun would revolve around the Earth.

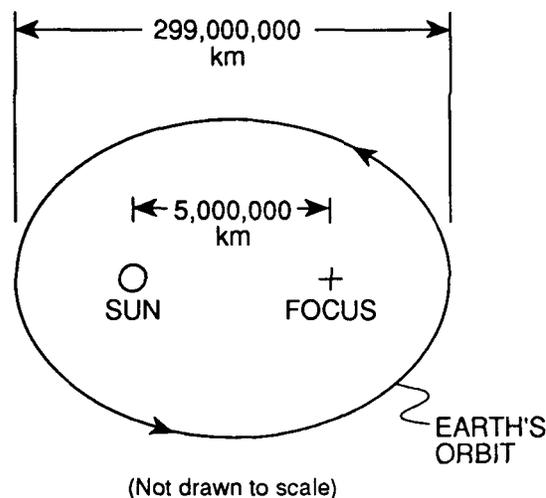
- The diagram below represents the Earth's orbital path around the Sun. The Earth takes the same amount of time to move from *A* to *B* as from *C* to *D*.



Which values are equal within the system?

- The shaded sections of the diagram are equal in area.
  - The distance from the Sun to the Earth is the same at point *A* and at point *D*.
  - The orbital velocity of the Earth at point *A* equals its orbital velocity at point *C*.
  - The gravitational force between the Earth and the Sun at point *B* is the same as the gravitational force at point *D*.
- Which statement best describes galaxies?
    - They are similar in size to the solar system.
    - They contain only one star but hundreds of planets.
    - They may contain a few hundred stars in a space slightly larger than the solar system.
    - They may contain billions of stars in a space much larger than our solar system.

- The diagram below represents the elliptical orbit of the Earth around the Sun.

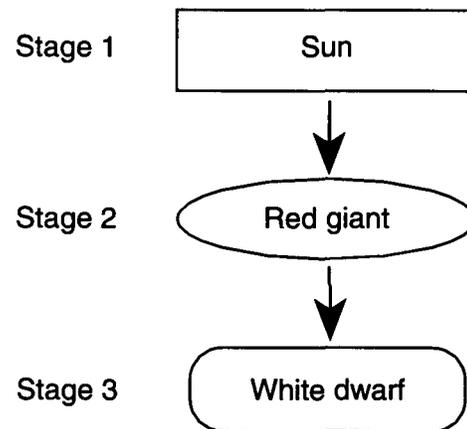


Which equation should be used to find the eccentricity of the Earth's orbit?

- eccentricity =  $\frac{299,000,000 \text{ km}}{5,000,000 \text{ km}}$
  - eccentricity =  $\frac{5,000,000 \text{ km}}{299,000,000 \text{ km}}$
  - eccentricity =  $299,000,000 \text{ km} - 5,000,000 \text{ km}$
  - eccentricity =  $\frac{5,000,000 \text{ km}}{299,000,000 \text{ km} - 5,000,000 \text{ km}}$
- According to the big bang theory, the universe began as an explosion and is still expanding. This theory is supported by observations that the stellar spectra of distant galaxies show a
    - concentration in the yellow portion of the spectrum
    - concentration in the green portion of the spectrum
    - shift toward the blue end of the spectrum
    - shift toward the red end of the spectrum
  - According to Hubble's law more rapidly moving galaxies are now
    - further away from us
    - closer to us
    - accelerating rapidly
    - already contracting toward another big bang

7. According to the graph, the Sun is classified as a
- (1) main sequence star with a temperature of approximately 4,000 K and a luminosity of 100
  - (2) main sequence star with a temperature of approximately 6,000 K and a luminosity of 1
  - (3) white dwarf star with a temperature of approximately 10,000 K and a luminosity of 0.01
  - (4) blue supergiant star with a temperature of approximately 20,000 K and a luminosity of 700,000

8. Stars are believed to undergo evolutionary changes over millions of years. The flowchart below shows stages of predicted changes in the Sun.



According to this flowchart, the Sun will become

- (1) hotter and brighter in stage 2, then cooler and dimmer in stage 3
  - (2) cooler and dimmer in stage 2, then hotter and brighter in stage 3
  - (3) hotter and dimmer in stage 2, then cooler and brighter in stage 3
  - (4) cooler and brighter in stage 2, then hotter and dimmer in stage 3
9. The explosion of a massive star near the end of its life is known as a
- |            |               |
|------------|---------------|
| (1) nova   | (3) supernova |
| (2) pulsar | (4) nebula    |

**Answer Key**  
**[New Exam]**

1. 4

2. 1

3. 4

4. 2

5. 4

6. 1

7. 2

8. 4

9. 3

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