Course Assignment

Assignment 7

The due date for submitting this assignment has passed.

Due on 2021-03-10, 22:59:00.

1) Consider an isolated star in a space. You are told that the pressure in the atmosphere of the star behaves as

\[ P = \rho g \eta \sigma \]  

where \( \epsilon \) is a constant and \( \rho \) is the radial distance from the center of the star. The atmosphere of the star expands from \( r = \rho \eta \) outward, and the gas pressure is \( P = \rho g \rho \eta \). Pick the correct answer:

- The atmosphere of the star can be in hydrostatic equilibrium
- The atmosphere of the star can be in isothermal equilibrium
- The atmosphere of the star can be in the radiative equilibrium
- The atmosphere of the star cannot be in hydrostatic equilibrium

No, this assignment has not been submitted.

2) Consider the atmosphere of the star which is dominated by hydrogen. In the figure below, the radius of the star is given in light-years. The atmosphere of the star is dominated by hydrogen.

![Figure 1](image)

- Curve 1 represents the gravitational acceleration of a star in a central black hole (a event)
- Curve 2 represents the gravitational acceleration of a star in a central white hole (a event)
- Curve 3 represents the gravitational acceleration of a star in a central white hole (b event)
- Curve 4 represents the gravitational acceleration of a star in a central black hole (b event)

No, this assignment has not been submitted.

3) Refer again to Figure 1. Pick the correct statement:

- The curve represents a main sequence star
- The curve represents a red giant star
- The curve represents a supergiant star
- The curve represents a supermassive star

No, this assignment has not been submitted.

4) Consider Figure 2. Pick the correct statement:

- The Stelbig's amplitude rule for a star with a surface at \( 1 \leq R \leq 3 \times 10^9 \) g c
- The Stelbig's amplitude rule for a star with a surface at \( 1 \leq R \leq 10^9 \) g c
- The Stelbig's amplitude rule for a star with a surface at \( 1 \leq R \leq 10^9 \) g c
- The Stelbig's amplitude rule for a star with a surface at \( 1 \leq R \leq 10^9 \) g c

No, this assignment has not been submitted.

5) Consider the situation [a, b, c, d] shown in Figure 2. The central mass-motion of the star (c) is dominated by a black hole, while the motion of the star (b) is dominated by a white hole. 

- The star can be observed as a black hole
- The star can be observed as a white hole
- The star can be observed as a black hole or a white hole
- The star can be observed as a black hole or a white hole

No, this assignment has not been submitted.

6) Consider the situation [a, b, c, d] shown in Figure 2. The central mass-motion of the star (c) is dominated by a black hole, while the motion of the star (b) is dominated by a white hole. 

- The star can be observed as a black hole
- The star can be observed as a white hole
- The star can be observed as a black hole or a white hole
- The star can be observed as a black hole or a white hole

No, this assignment has not been submitted.

7) Consider the situation [a, b, c, d] shown in Figure 2. The central mass-motion of the star (c) is dominated by a black hole, while the motion of the star (b) is dominated by a white hole. 

- The star can be observed as a black hole
- The star can be observed as a white hole
- The star can be observed as a black hole or a white hole
- The star can be observed as a black hole or a white hole

No, this assignment has not been submitted.

8) Consider the situation [a, b, c, d] shown in Figure 2. The central mass-motion of the star (c) is dominated by a black hole, while the motion of the star (b) is dominated by a white hole. 

- The star can be observed as a black hole
- The star can be observed as a white hole
- The star can be observed as a black hole or a white hole
- The star can be observed as a black hole or a white hole

No, this assignment has not been submitted.

9) Consider the situation [a, b, c, d] shown in Figure 2. The central mass-motion of the star (c) is dominated by a black hole, while the motion of the star (b) is dominated by a white hole. 

- The star can be observed as a black hole
- The star can be observed as a white hole
- The star can be observed as a black hole or a white hole
- The star can be observed as a black hole or a white hole

No, this assignment has not been submitted.

10) Consider the situation [a, b, c, d] shown in Figure 2. The central mass-motion of the star (c) is dominated by a black hole, while the motion of the star (b) is dominated by a white hole. 

- The star can be observed as a black hole
- The star can be observed as a white hole
- The star can be observed as a black hole or a white hole
- The star can be observed as a black hole or a white hole

No, this assignment has not been submitted.

11) Consider the situation [a, b, c, d] shown in Figure 2. The central mass-motion of the star (c) is dominated by a black hole, while the motion of the star (b) is dominated by a white hole. 

- The star can be observed as a black hole
- The star can be observed as a white hole
- The star can be observed as a black hole or a white hole
- The star can be observed as a black hole or a white hole

No, this assignment has not been submitted.

12) Consider the situation [a, b, c, d] shown in Figure 2. The central mass-motion of the star (c) is dominated by a black hole, while the motion of the star (b) is dominated by a white hole. 

- The star can be observed as a black hole
- The star can be observed as a white hole
- The star can be observed as a black hole or a white hole
- The star can be observed as a black hole or a white hole

No, this assignment has not been submitted.