Comparison of improper integrals **SECTION 7.8**

Determine if the improper integral converges or diverges. Justify your answer by doing parts a-c.

1. $\int_2^\infty \frac{x^5}{x^6-1}dx$

a. Your prediction

b. Correct inequality

c. Conclusion

2. $\int_2^\infty \frac{x^3+1}{(x^4+4x+1)^2}dx$

a. Your prediction

b. Correct inequality

c. Conclusion

3. $\int_2^\infty \frac{dz}{\sqrt{z^3+1}}$

a. Your prediction

b. Correct inequality

c. Conclusion

4. $\int_1^{\infty} \frac{dx}{(x+5)^5}$

a. Your prediction

b. Correct inequality

c. Conclusion

5. $\int_4^{\infty} \frac{3+\sin x}{x} dx$

a. Your prediction:

b. Correct inequality

c. Conclusion

6. $\int_1^{\infty} \frac{3+\sin x}{\sqrt{x}} dx$

a. Your prediction

b. Correct inequality

c. Conclusion

7. $\int_2^{\infty} \frac{5}{e^{10t}+51} dx$

a. Your prediction

b. Correct inequality

c. Conclusion