

MA 2320: Quiz 6

Name: _____

1. $\lim_{n \rightarrow \infty} \frac{1}{n^2}$
2. $\lim_{n \rightarrow \infty} \frac{3n^2 - 2n + 1}{5n^2 + 8}$
3. $\lim_{n \rightarrow \infty} \frac{\sqrt{n}(2n+1)}{\sqrt{5n^3+8}}$
4. $\lim_{x \rightarrow 0} (1 + 5x^2)^{1/x^2}$
5. $\lim_{n \rightarrow \infty} \left(1 + \frac{3}{n}\right)^n$
6. $\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n^2}\right)^n$
7. $\lim_{n \rightarrow \infty} \frac{1}{n!}$
8. $\lim_{n \rightarrow \infty} \frac{n!}{2(n!)}$
9. $\lim_{n \rightarrow \infty} \frac{e^n}{2^n}$
10. $\sum_{k=1}^{\infty} \frac{1}{k} - \frac{1}{k+2}$
11. $\sum_{k=1}^{\infty} 3^{-k}$
12. $9 + -3 + 1 + -\frac{1}{3} + \frac{1}{9} + \dots$
13. $1 - 1 + 1 - 1 + 1 + \dots$
14. $\sum_{k=1}^{\infty} \frac{k^2 + 1}{3k^2 + 2k + 11}$
15. $\sum_{n=1}^{\infty} \left(1 + \frac{3}{n}\right)^n$
16. $\sum_{k=17}^{\infty} \frac{1}{k \ln(k)}$ Hint I used the integral test here
17. $\sum_{k=1}^{\infty} \frac{1}{\sqrt{k}}$
18. $\sum_{k=1}^{\infty} \frac{1}{k^2}$
19. $\sum_{k=1}^{\infty} \frac{k+3}{k^2+2k}$ I used Limit Comparison test here
20. $\sum_{k=1}^{\infty} \frac{k+3}{k^3+2k}$ I used Limit Comparison test here