

MA 2320: Quiz 5

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. $\sum_{k=17}^{\infty} \frac{1}{k \ln(k)}$

14. $\sum_{k=1}^{\infty} \frac{1}{\sqrt{k}}$

15. $\sum_{k=1}^{\infty} \frac{1}{k^2}$

16. $\sum_{k=1}^{\infty} \frac{k}{2^k}$

17. $\sum_{k=1}^{\infty} \frac{1}{k!}$

18. $\sum_{k=1}^{\infty} \frac{2^k}{k!}$

19. $\sum_{k=1}^{\infty} \frac{k!}{k^k}$

$$20. \sum_{k=1}^{\infty} \frac{(k!)^2}{k^k}$$

$$21. \sum_{k=1}^{\infty} \frac{(k!)^2}{(2k)!}$$

$$22. \sum_{k=1}^{\infty} \frac{(2k)!}{k^k}$$