Math 172

Midterm 3 : Potential Questions

For each of the following series circle if they converge or diverge and the test needed to show that:

$\sum_{n=1}^{\infty} \frac{1}{n}$	converges	Divergence test
	diverges	Alternating Series Test
		Integral Test
$\sum_{n=1}^{\infty} (-1)^n \frac{n}{n+1}$	converges	Divergence test
	diverges	Alternating Series Test
		Integral Test
$\sum_{n=1}^{\infty} \frac{(-2)^n}{n!}$	converges	Ratio Test
	diverges	Comparison Test
		Integral Test
$\sum_{n=1}^{\infty} \left(2 + \frac{1}{n}\right)^n$	converges	Divergence Test
	diverges	Root Test
		Alternating Series Test
$\sum_{n=1}^{\infty} \sin\left(\frac{1}{n}\right)$	converges	Divergence Test
	diverges	Alternating Series Test
		Limit Comparison Test
$\sum_{n=1}^{\infty} \frac{\ln n}{n}$	converges	Alternating Series Test
	diverges	DivergenceTest
		Integral Test

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Midterm 3 : Potential Questions

For each of the following series circle if they converge or diverge and the test needed to show that:

$\sum_{n=1}^{\infty} \frac{1}{n}$	converges (diverges)	Divergence test Alternating Series Test (Integral Test)
$\sum_{n=1}^{\infty} (-1)^n \frac{n}{n+1}$	converges (diverges)	(Divergence test) Alternating Series Test Integral Test
$\sum_{n=1}^{\infty} \frac{(-2)^n}{n!}$	(converges) diverges	(Ratio Test) Comparison Test Integral Test
$\sum_{n=1}^{\infty} \left(2 + \frac{1}{n}\right)^n$	converges (diverges)	Divergence Test (Root Test) Alternating Series Test
$\sum_{n=1}^{\infty} \sin\left(\frac{1}{n}\right)$	converges (diverges)	Divergence Test Alternating Series Test (Limit Comparison Test)
$\sum_{n=1}^{\infty} \frac{\ln n}{n}$	converges (diverges)	Alternating Series Test DivergenceTest (Integral Test)