

$$\int_4^{\infty} \frac{6}{1+x^8} dx$$

Example:  $2 \leq 3$   
so  $\frac{1}{2} \geq \frac{1}{3}$

$$1 \geq 0$$

↓ add  $x^8$  to both sides

$$1+x^8 \geq x^8$$

↓ reciprocal both sides. Change inequality direction

$$\frac{1}{1+x^8} \leq \frac{1}{x^8}$$

$\int_1^{\infty} \frac{1}{x^8} dx$  converges since  $p$  is 8 and  $p > 1$ .

By the Comparison Theorem,  $\int_1^{\infty} \frac{1}{1+x^8} dx$  converges.

Changing the starting  $x$  and multiplying by 6 does not change convergence.

So  $\int_4^{\infty} \frac{6}{1+x^8} dx$  converges

I avoided the word it. "It" could refer to