

## Limits – Worksheet 1

Evaluate each of the following limits. Show all work.  
If the limit does not exist, write NO LIMIT

$$1. \lim_{x \rightarrow 2} \frac{x+3}{x+2}$$

$$2. \lim_{x \rightarrow 1} \frac{x^2-1}{x-1}$$

$$3. \lim_{z \rightarrow 0} \frac{5}{x}$$

$$4. \lim_{y \rightarrow 2} \frac{y+2}{y^2+5y+6}$$

$$5. \lim_{t \rightarrow 2} \frac{t^2-5t+6}{t-2}$$

$$6. \lim_{x \rightarrow p} \sin x$$

$$7. \lim_{x \rightarrow 2} \frac{x^3-8}{x^2-4}$$

$$8. \lim_{x \rightarrow 5} \frac{x^2-4x-5}{x^3-125}$$

$$9. \lim_{x \rightarrow 3} \frac{5x^2-8x-13}{x^2-5}$$

$$10. \lim_{x \rightarrow 3} \frac{x^4-81}{2x^2-5x-3}$$

$$11. \lim_{x \rightarrow 2} \left[ \frac{\frac{1}{x} + \frac{1}{2}}{x^3+8} \right]$$

$$12. \lim_{x \rightarrow 2} \frac{3x^2-x-10}{x^2-4}$$

$$13. \lim_{x \rightarrow 0} \frac{x^3-7x}{x^3}$$

$$14. \lim_{x \rightarrow 0} \frac{\sin 5x}{5x}$$

$$15. \lim_{x \rightarrow 0} \frac{1-\cos(2x)}{2x}$$

$$16. \lim_{x \rightarrow 0} \frac{\sin(3x)}{\sin(x)}$$

$$17. \lim_{x \rightarrow 0} \frac{x+2}{\sin x}$$

$$18. \lim_{x \rightarrow \frac{\pi}{4}} (\tan x)$$

$$19. \lim_{x \rightarrow 0} \frac{1-\cos x}{\sin^2 x}$$

$$20. \lim_{x \rightarrow \frac{\pi}{6}} \frac{2 \tan x}{\cos x}$$