# Introduction to limits - Answers

**Calculate the following limits if they exist:**

1. $\lim_{x\to 5}\frac{x^2-25}{x-5} = 10$

2. $\lim_{x\to 4}\frac{x^2+2x-24}{x-4} = 10$

3. $\lim_{x\to 2}\frac{x^2+3x-10}{x-2} = 7$

4. $\lim_{x\to 0}\frac{x^3+5x^2+8x}{x} = 8$

5. $\lim_{x\to 0}\frac{x^2-2x+3}{x-2} = -\frac{3}{2}$

6. $\lim_{x\to 2}\frac{x^2+5x-14}{x-2} = 9$

7. $\lim_{x\to -3}\frac{2x+4}{x-3} = \frac{1}{3}$

8. $\lim_{x\to 3}\frac{x^2-9}{x-3} = 6$

9. $\lim_{x\to 8}\frac{x-8}{x^2-21x+104} = -\frac{1}{5}$

10. $\lim_{x\to -10}\frac{x^2+4x-60}{x^2+2x-80} = \frac{8}{9}$

11. $\lim_{x\to 9}\frac{5x^2-41x-36}{x^2+21x+108} = -\frac{49}{3}$

12. $\lim_{x\to 6}\frac{3x^2-24x+36}{x-6} = 12$