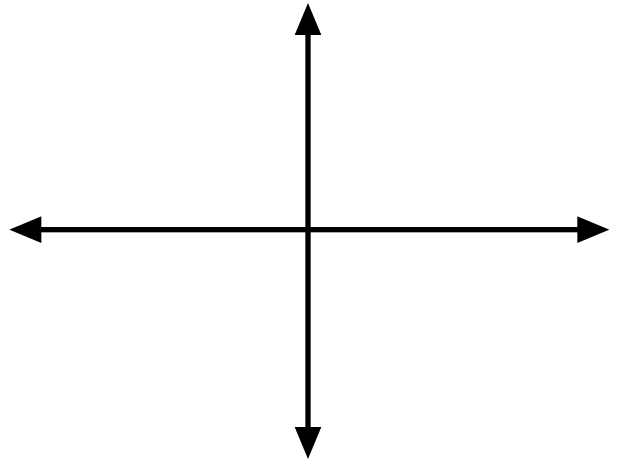
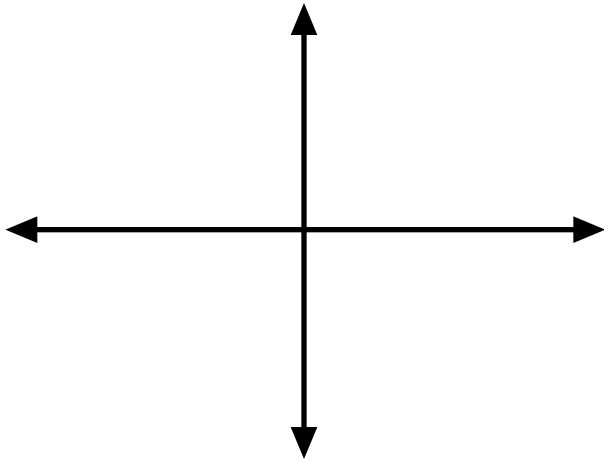


Graph each function and determine the limits.

1. $f(x) = (x - 4)^2 (x + 1) (x - 2)^3$

2. $f(x) = -2(x - 4)^2 (x + 1) (x - 2)^4$



1a. $\lim_{x \rightarrow \infty} f(x) =$

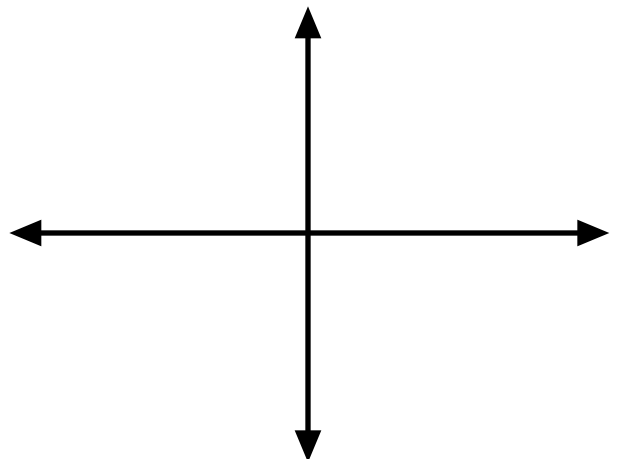
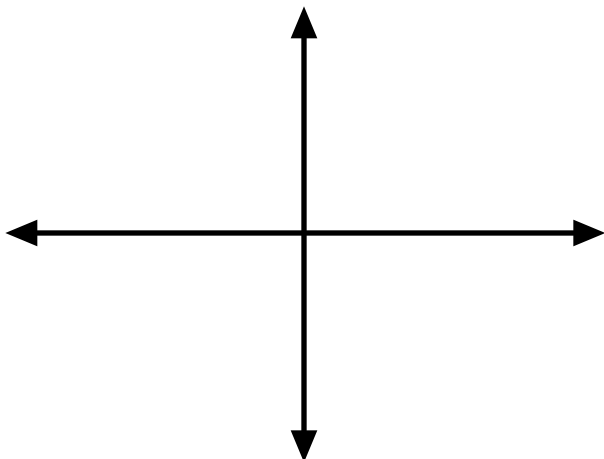
2a. $\lim_{x \rightarrow \infty} f(x) =$

2b. $\lim_{x \rightarrow -\infty} f(x) =$

2b. $\lim_{x \rightarrow -\infty} f(x) =$

3. $f(x) = (x - 4) (x + 1) (x - 2)^3$

4. $f(x) = -4x (x - 4)^2 (x + 1)^2 (x - 2)^3$



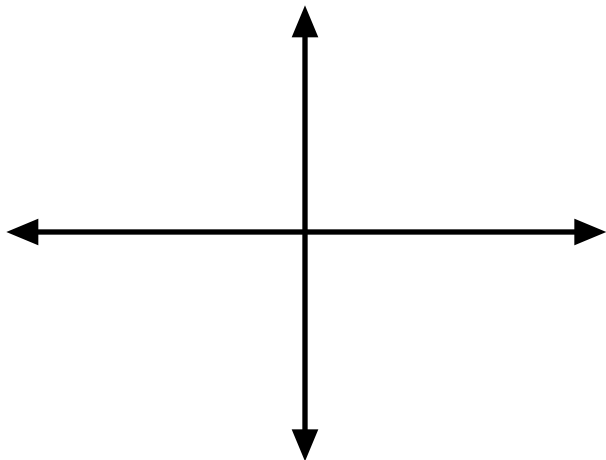
3a. $\lim_{x \rightarrow \infty} f(x)$

4a. $\lim_{x \rightarrow \infty} f(x)$

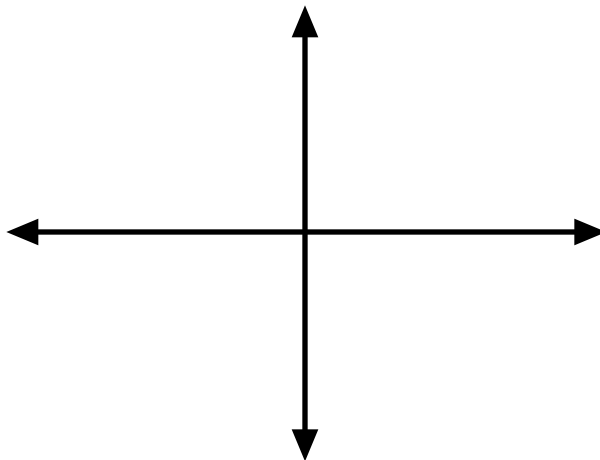
3b. $\lim_{x \rightarrow -\infty} f(x)$

4b. $\lim_{x \rightarrow -\infty} f(x)$

5. $f(x) = (x-4)^2(x+1)^2(x-2)^4$



6. $f(x) = (x-4)^2(x+1)(x-2)^2$



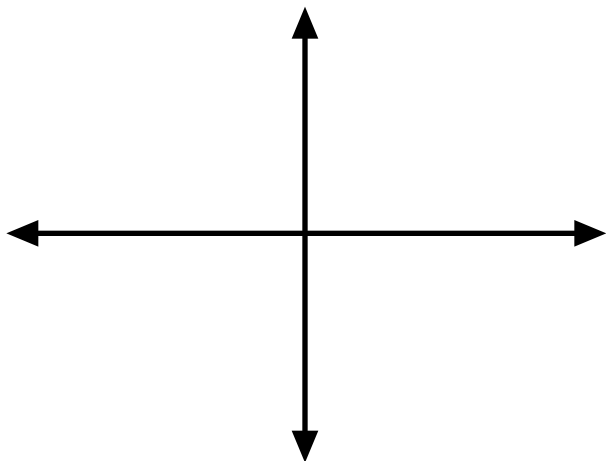
5a. $\lim_{x \rightarrow \infty} f(x)$

5b. $\lim_{x \rightarrow -\infty} f(x)$

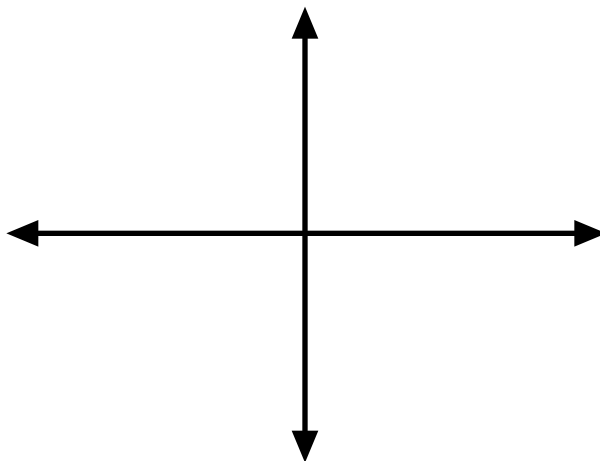
6a. $\lim_{x \rightarrow \infty} f(x)$

6b. $\lim_{x \rightarrow -\infty} f(x)$

7. $f(x) = (x-4)(x+1)^4(x-2)^2$



8. $f(x) = -2x^2(x-2)^3$



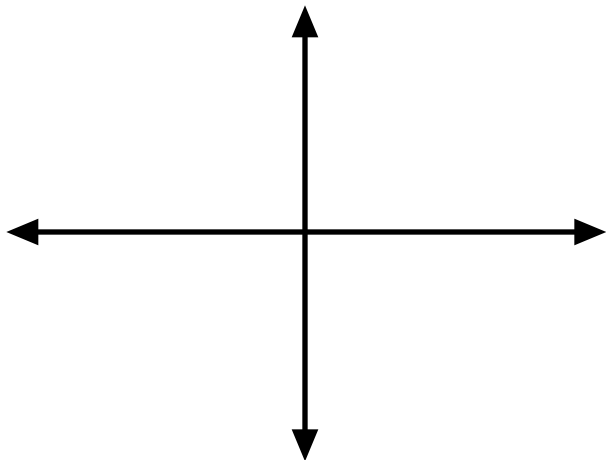
7a. $\lim_{x \rightarrow \infty} f(x)$

7b. $\lim_{x \rightarrow -\infty} f(x)$

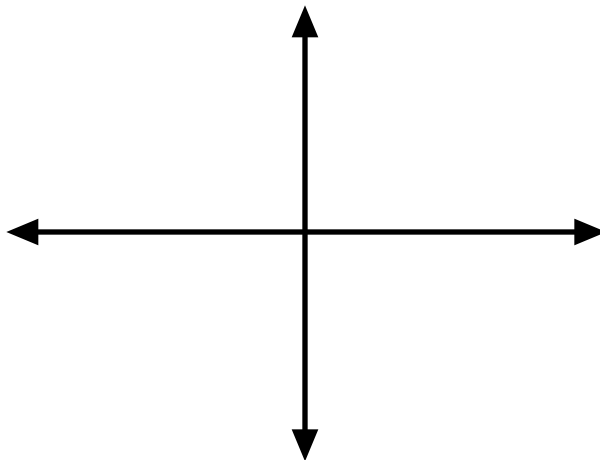
8a. $\lim_{x \rightarrow \infty} f(x)$

8B. $\lim_{x \rightarrow -\infty} f(x)$

9. $f(x) = 8x^5 - 10x^4 - 3x^3$



10. $f(x) = x^6 - 9x^4$



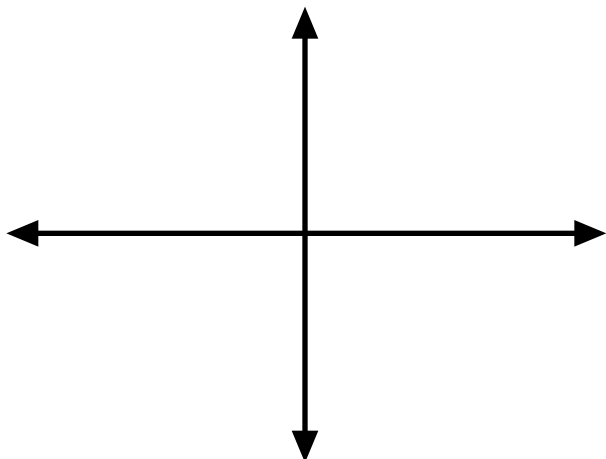
9a. $\lim_{x \rightarrow \infty} f(x)$

10a. $\lim_{x \rightarrow \infty} f(x)$

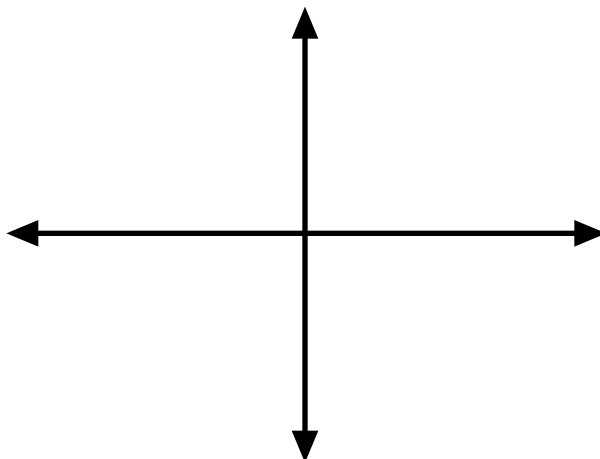
9b. $\lim_{x \rightarrow -\infty} f(x)$

10b. $\lim_{x \rightarrow -\infty} f(x)$

11. $f(x) = x^3(x^2 - 4)(x^2 + 9)$



12. $f(x) = -3x^3(x^2 - 4)(x^2 - 8x + 16)$



11a. $\lim_{x \rightarrow \infty} f(x)$

12a. $\lim_{x \rightarrow \infty} f(x)$

11b. $\lim_{x \rightarrow -\infty} f(x)$

12b. $\lim_{x \rightarrow -\infty} f(x)$