

In Exercises 23–28, write the next two apparent terms of the sequence. Describe the pattern you used to find these terms.

26. $1, -\frac{1}{2}, \frac{1}{4}, -\frac{1}{8}, \dots, \frac{1}{16}, -\frac{1}{32}$

$$-\frac{1}{2}(a_n)$$

$$\frac{1}{(-2)^n}$$

$$(-1)^n \frac{1}{2^n}$$

In Exercises 29–34, simplify the ratio of factorials.

29. $\frac{11!}{8!}$

$$\frac{11 \cdot 10 \cdot 9 \cdot \cancel{8!}}{\cancel{8!}}$$

$$990$$

32. $\frac{(n+2)!}{n!}$

$$\frac{(n+2)(n+1)\cancel{n!}}{\cancel{n!}}$$

$$(n+2)(n+1)$$

In Exercises 35–40, find the limit (if possible) of the sequence.

$$37. a_n = \frac{2n}{\sqrt{n^2 + 1}}$$

$$\lim_{n \rightarrow \infty} \frac{2n}{\sqrt{n^2 + 1}}$$

2