**Limit of a Sequence**

Find the limits of these sequences as $n\rightarrow \infty $

(a) $\frac{3n}{9n-4}$ (b) $\frac{n}{2n-7} $

(c) $\frac{4n}{2n+1}$ (d) $\frac{8n+1}{2n-3} $

(e) $\frac{3n+2}{6n-4} $ (f) $\frac{2-9n}{15n-4}$

Find the limits of these sequences as $n\rightarrow \infty $

(a) $\frac{n^{2}}{n^{2}-1}$ (b) $\frac{4n^{2}}{n^{2}+1}$

(c) $\frac{5n^{2}+1}{10n^{2}-2}$ (d) $\frac{2n^{2}-1}{5n^{2}}$

(a) A sequence starts $\frac{2}{3}, \frac{3}{5}, \frac{4}{7}, \frac{5}{9},…$

Find the nth term for this sequence and the limiting value as $n\rightarrow \infty $.

(b) A sequence starts $\frac{1}{5}, \frac{4}{9}, \frac{7}{13}, \frac{10}{17},…$

Find the nth term for this sequence and the limiting value as $n\rightarrow \infty $.

(a) A sequence with nth term $\frac{an+5}{5n-1}$ has a limiting value of $\frac{2}{5}$ as $n\rightarrow \infty $. Work out the value of $a$.

(b) A sequence with nth term $\frac{10-bn}{3n+2}$ has a limiting value of $-3$ as $n\rightarrow \infty $. Work out the value of $b$.

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