Sequences - Answer Key

Find the general term of the sequences where the first term corresponds to $n = 1$.

1. $-1, 5, -7, 17, ...$

   $a_n = (-2)^n + 1$

2. $0, -2, -6, -12, ...$

   $a_n = n - n^2$

3. $\frac{\sin 2}{1}, \frac{\sin 4}{3!}, \frac{\sin 6}{5!}, \frac{\sin 8}{7!}, ...$

   $a_n = \frac{\sin(2n)}{(2n-1)!}$

4. $\frac{1}{2}, \frac{e}{6}, \frac{e^2}{12}, \frac{e^3}{20}, ...$

   $a_n = \frac{e^{n-1}}{n(n+1)}$

5. $-2, \frac{4}{\sqrt{2}}, \frac{-8}{\sqrt{3}}, \frac{16}{\sqrt{4}}, ...$

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

6. $\frac{11}{9}, \frac{21}{19}, \frac{31}{29}, \frac{41}{39}, ...$

   $a_n = \frac{10n+1}{10n-1}$

7. $\frac{2}{1}, \frac{2^4}{2}, \frac{2^9}{3}, \frac{2^16}{4}, ...$

   $a_n = \frac{2^{n^2}}{n}$

8. $\frac{-2!}{3}, \frac{3!}{5}, \frac{-4!}{7}, \frac{5!}{9}$

   $a_n = (-1)^{n+1} \frac{(n+1)!}{2n+1}$

9. $2, \sqrt{7}, \sqrt{10}, \sqrt{13}, ...$

   $a_n = \sqrt{3n+1}$

10. $\frac{4}{2}, \frac{7}{4}, \frac{12}{6}, \frac{19}{8}, ...$

    $a_n = \frac{n^2+3}{2n}$
