## Sequences - Answer Key

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

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

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

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

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

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

$$a_n = n - n^2$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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