

## Exercise 28

For the following exercises, evaluate  $f$  at the indicated values  $f(-3)$ ,  $f(2)$ ,  $f(-a)$ ,  $-f(a)$ ,  $f(a+h)$ .

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

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### Solution

Evaluate the function at each of the given numbers.

$$f(-3) = -5(-3)^2 + 2(-3) - 1 = -5(9) - 6 - 1 = -45 - 6 - 1 = -52$$

$$f(2) = -5(2)^2 + 2(2) - 1 = -5(4) + 4 - 1 = -20 + 4 - 1 = -17$$

$$f(-a) = -5(-a)^2 + 2(-a) - 1 = -5a^2 - 2a - 1$$

$$-f(a) = -[-5(a)^2 + 2(a) - 1] = -(-5a^2 + 2a - 1) = 5a^2 - 2a + 1$$

$$\begin{aligned} f(a+h) &= -5(a+h)^2 + 2(a+h) - 1 \\ &= -5(a^2 + 2ah + h^2) + 2a + 2h - 1 \\ &= -5a^2 - 10ah - 5h^2 + 2a + 2h - 1 \end{aligned}$$