

4.

3233-M44883

Consider the graph of the function $s(x) = x^2 + 6x + 9$.

Part A

The function $r(x)$ is defined as $r(x) = k \cdot s(x)$, where k is a constant. Which statements about the graphs of $s(x)$ and $r(x)$ are true?

Select **all** that apply.

- A. When $k < 0$, the vertex of the graph of $r(x)$ is a minimum.
- B. When $k < 0$, the vertex of the graph of $r(x)$ is a maximum.
- C. When $k > 1$, the graph of $r(x)$ is a vertical stretch of the graph of $s(x)$.
- D. When $k > 1$, the graph of $r(x)$ is a vertical compression of the graph of $s(x)$.
- E. When $0 < k < 1$, the graph of $r(x)$ is a vertical stretch of the graph of $s(x)$.
- F. When $0 < k < 1$, the graph of $r(x)$ is a vertical compression of the graph of $s(x)$.

Part B

The graph of $s(x)$ is translated to produce the graph of $t(x)$, where $t(x) = x^2 + 6x + 13$. Which is a correct description of the translation?

- A. vertical shift 4 units up
- B. vertical shift 4 units down
- C. horizontal shift 4 units to the left
- D. horizontal shift 4 units to the right