SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Use the graph to evaluate the limit.

1) \( \lim_{x \to 0} f(x) \)

2) \( \lim_{x \to -1} f(x) \)
3) \( \lim_{x \to 0} f(x) \)

Use the graph to estimate the specified limit.

4) Find \( \lim_{x \to (-1)^-} f(x) \) and \( \lim_{x \to (-1)^+} f(x) \)

Find the average rate of change of the function over the given interval.

5) \( g(t) = 5 + \tan t,\left[ -\frac{\pi}{4}, \frac{\pi}{4} \right] \)
6) \( y = \sqrt{2x} \), [2, 8]  

Find the limit.

7) \( \lim_{x \to 1^-} \frac{\sqrt{5x(x-1)}}{|x-1|} \)  

8) \( \lim_{x \to 3^+} \frac{1}{x-3} \)  

9) \( \lim_{x \to 5^-} \frac{1}{x^2 - 25} \)  

10) \( \lim_{x \to 0^+} (1 + \csc x) \)  

11) \( \lim_{x \to 4^+} \left( \frac{1}{x^{1/5}} - \frac{1}{(x-4)^{4/5}} \right) \)
12) \( \lim_{x \to -\pi} \sqrt{x + 3} \cos(x + \pi) \)

13) \( \lim_{x \to 2} (x^2 + 8x - 2) \)

14) \( \lim_{x \to -2} \frac{1}{x + 2} \)

15) \( \lim_{x \to (\pi/2)^+} \tan x \)
Solve the problem.

16) When exposed to ethylene gas, green bananas will ripen at an accelerated rate. The number of days for ripening becomes shorter for longer exposure times. Assume that the table below gives average ripening times of bananas for several different ethylene exposure times:

<table>
<thead>
<tr>
<th>Exposure time (minutes)</th>
<th>Ripening Time (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>4.2</td>
</tr>
<tr>
<td>15</td>
<td>3.5</td>
</tr>
<tr>
<td>20</td>
<td>2.6</td>
</tr>
<tr>
<td>25</td>
<td>2.1</td>
</tr>
<tr>
<td>30</td>
<td>1.1</td>
</tr>
</tbody>
</table>

Plot the data and then find a line approximating the data. With the aid of this line, find the limit of the average ripening time as the exposure time to ethylene approaches 0. Round your answer to the nearest tenth.

Find the slope of the curve at the given point P and an equation of the tangent line at P

17) \( y = x^2 + 5x \), P(4, 36)
Determine the limit by sketching an appropriate graph.

18) \( \lim_{{x \to 7^-}} f(x) \), where 
\[
    f(x) = \begin{cases} 
        \sqrt{9 - x^2} & 0 \leq x < 3 \\
        3 & 3 \leq x < 7 \\
        7 & x = 7 
    \end{cases}
\]