1. Section 2.6; Page 226; Problems: 4, 17, 19, 20
2. Section 3.1; Page 241; Problems: 1, 9, 20, 21, 23, 35
3. Section 3.2; Page 250; Problems: 8, 16, 20, 35, 46, 47.

Problem 2.6.17 We are using the equation $A = Pr^t$ and we are trying to solve for $P$ when $A = $1000, $r = .09$ and $t = 1$ or $t = 2$. First we do the problem for $t = 1$, $1000 = Pe^{.09 \cdot 1} \Rightarrow 1000 \cdot e^{-.09 \cdot 1} = P$ so $P \approx$ $913.93$. When $t = 2$ we use the same steps to get $1000 \cdot e^{-.09 \cdot 2} = P$ so $P \approx$ $835.27$.

Problem 3.1.9

<table>
<thead>
<tr>
<th>$x$</th>
<th>1.9</th>
<th>1.99</th>
<th>1.999 → 2</th>
<th>2 ← 2.001</th>
<th>2.01</th>
<th>2.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\sim 4x^3$</td>
<td>27.44</td>
<td>31.52</td>
<td>31.95 → 32</td>
<td>32 ← 32.05</td>
<td>32.48</td>
<td>37.04</td>
</tr>
</tbody>
</table>

Thus $\lim_{x \to 2} 4x^3 = 32$.

Problem 3.1.35 We want to find $\lim_{x \to 1} f(x)$ where $f(x)$ looks like $3x$ when the $x$ values are less than or equal to 1 and $x + 1$ when the $x$ values are greater than 1. First we graph the function and then we inspect it.

Upon inspection we see that as the $x$ values approach 1 from the right our function values get closer to 2 and as the $x$ values approach from the left our $x$ values get closer to 3 so the limit as $x$ approaches 1 does not exist.

Problem 3.2.20 $\lim_{x \to 1} \frac{x^2 + x}{x^2 - 1} = \lim_{x \to 1} \frac{x(x + 1)}{(x + 1)(x - 1)} = \lim_{x \to 1} \frac{x}{x - 1} = \frac{-1}{-2} = 1/2$.

Problem 3.2.46 If $\lim_{x \to c} f(x) = 5$ and $\lim_{x \to c} g(x) = 2$ then $\lim_{x \to c} [f(x) - g(x)] = \lim_{x \to c} f(x) - \lim_{x \to c} g(x) = 5 - 2 = 3$. 