Fill in the blank entries of the following table:

<table>
<thead>
<tr>
<th>$f(x)$</th>
<th>$f'(x)$</th>
<th>$f''(x)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$e^{Ax}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\sqrt{x}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\ln x$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\sin(2x)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\cos(2x)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\tan(4x)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\sec(5x)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\cot(6x)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\csc(7x)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\arcsin(x)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\arccos(x)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\arctan(x)$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2 Fill in the blank entries of the following table.

<table>
<thead>
<tr>
<th>$f(x)$</th>
<th>$f'(x)$</th>
<th>$f''(x)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\cos(2x)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\sin(x)^2$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\cos(x)^2$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\sec(x)^2$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$x^{-1}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$4x^{-1}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\csc(x)^2$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\sec(x)\tan(x)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\ln(\sec(x))$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\ln \left( x + \sqrt{x^2 + 1} \right)$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\ln(\sec(x) + \tan(x))$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. Fill in the blank entries of the following table.

<table>
<thead>
<tr>
<th>$f(x)$</th>
<th>$f'(x)$</th>
<th>$f''(x)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1$</td>
<td>$\frac{1}{\sqrt{3-2x}}$</td>
<td>$xe^{3x}$</td>
</tr>
<tr>
<td>$xe^{3x}$</td>
<td>sinh($x$)</td>
<td>$cosh(x)$</td>
</tr>
<tr>
<td>$cosh(x)$</td>
<td>$ln(x)$</td>
<td>arcsin($x$)</td>
</tr>
<tr>
<td>$ln(x)$</td>
<td>$arctan(x)$</td>
<td>$arcsinh(x)$</td>
</tr>
<tr>
<td>$arcsinh(x)$</td>
<td>$\ln(x + \sqrt{x^2 + 1})$</td>
<td>$arctanh(x)$</td>
</tr>
<tr>
<td>$arctanh(x)$</td>
<td>$\ln \left( \frac{1+x}{\sqrt{1-x^2}} \right)$</td>
<td>$arccosh(x)$</td>
</tr>
</tbody>
</table>