(1) Determine the missing values in the table based on the equation $x = y^2$

<table>
<thead>
<tr>
<th>$x$</th>
<th>0</th>
<th>8</th>
<th>64</th>
<th>9</th>
<th>163</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y$</td>
<td>0</td>
<td>2$\sqrt{2}$</td>
<td>$\pm 8$</td>
<td>$\pm 3$</td>
<td>$-\sqrt{3}$</td>
</tr>
</tbody>
</table>

- $x = 0$, $y = \sqrt{x} = \sqrt{0} = 0$
- $y = 2\sqrt{2}$, $x = y^2 = (2\sqrt{2})^2 = 8$
- $x = 64$, $y = \sqrt{x} = \sqrt{64} = 8$ (or $-8$)
- $x = 9$, $y = \sqrt{x} = \sqrt{9} = 3$ (or $-3$)
- $y = -\sqrt{3}$, $x = y^2 = (-\sqrt{3})^2 = 3$

(2) Find the perimeter of the triangle whose vertices are the following points specified in the plane:

(8,2), (4, 5) and (3, -8)

\[d_1 = \sqrt{(8-4)^2 + (2-(-5))^2} = \sqrt{16 + 49} = \sqrt{65}\]

\[d_2 = \sqrt{(4-3)^2 + (-5-(-8))^2} = \sqrt{1 + 9} = \sqrt{10}\]

\[d_3 = \sqrt{(8-3)^2 + (2-(-8))^2} = \sqrt{25 + 81} = \sqrt{106}\]

The perimeter is the sum of all sides:

\[P = d_1 + d_2 + d_3 = \sqrt{65} + \sqrt{10} + \sqrt{106} = \sqrt{65 + 10 + 106}\]
Q & A:

Q: How to determine when an absolute value inequality breaks into two?

A: Depends on the inequality sign.

- If an absolute value is less than (or equal to) some number, then it becomes a string of inequality, where the expression inside the absolute value is sandwiched between the number and its opposite.

- If an absolute value is greater than (or equal to) some number, then break it into two inequalities, and connect them with an or statement.

E.g. 1 \[ |3x - 2| < 11 \]

\[ -11 < 3x - 2 < 11 \]
\[ -9 < 3x < 13 \]
\[ -3 < x < \frac{13}{3} \]

E.g. 2 \[ |3x - 2| > 11 \]

\[ 3x - 2 > 11 \]
\[ 3x > 13 \]
\[ x > \frac{13}{3} \]

\[ 3x - 2 < -11 \]
\[ 3x < -9 \]
\[ x < -3 \]

\[ (-\infty, -3) \cup \left(\frac{13}{3}, \infty\right) \]