I. $x$- and $y$-intercepts of a line...

...to find these two points...
Let $x = 0$ in the equation, solve for $y = b$, then let $y = 0$ in the equation, solve for $x = a$.

<table>
<thead>
<tr>
<th>$x$</th>
<th>$y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$b$</td>
</tr>
<tr>
<td>$a$</td>
<td>$0$</td>
</tr>
</tbody>
</table>

II. Slope of a line (p.138): quantitative measure of how steep a line is tilted, usually denoted “$m$”

For any two points on a line, $P_1(x_1, y_1)$ & $P_2(x_2, y_2)$...

$m = \frac{y_2 - y_1}{x_2 - x_1}$

“$\text{rise}$” (vertical change)

“$\text{run}$” (horizontal change)
III. Equation Forms of a Line:
   1. $y = mx + b$  
      slope-intercept form
   2. $Ax + By = C$  
      standard form

IV. Examples (pp.151-152): Exercises #4, 16, 22, 26, 30

V. Two Anomalous Lines (p.145):

<table>
<thead>
<tr>
<th>Type of Line</th>
<th>Equation Form</th>
<th>$x$- and $y$-Intercepts</th>
<th>Slope of line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal</td>
<td>$y = b$</td>
<td>none &amp; (0,b)</td>
<td>m = 0</td>
</tr>
<tr>
<td>Vertical</td>
<td>$x = a$</td>
<td>(a,0) &amp; none</td>
<td>m is undefined</td>
</tr>
</tbody>
</table>

VI. Examples (p.152): Exercises #52, 60
VII. Application Example (p.153): Exercise #80

HW: pp.151-153 / Exercises #7-61 (every other odd), 77, 81

Read pp.136-150 (section 2.4)